Cosmos Software Manual

Revision 1.0
(July 2009)

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Table of Contents

Preface……...iii

About this Manual iii

1 Cosmos Program 4

1.1 Using the Cosmos Program 4
1.2 Features 4
Specifications 5
1.3 Installation 5

2 Configuring the Cosmos Program 7

2.1 Configuration 7
Before Starting the Cosmos Program 7
2.2 Starting the Cosmos Program 9
2.3 Module Control 13
Layout Control Mode 13
Group Control 14
Global Settings 15
Set the 3D Borders 16
System Information 17
Set MCC Series (Legacy models) Audio Meters 18
Set Label Properties 19
Set MCC-8000 Series Audio Meters 19
Set MCC-8000 Series Time Clock 20
Set MCC-8000 Series Alarm Attribute 22
Create / Load Global Presets 23
Module Setting 24
Set Module OSD Attribute 26
Set Module Tally Definition 26
Set Module GPI Definition 26
Module Flash 27
Clear System Files 29
Module Status and BIOS Version 30

Tally Setting 30
Setup All Module Labels 32
Setup Module Audio Monitors 33
Group Manager: Module Re-grouping 34
Module Layout Setup 42
Setup System Check 43
Audio Alarm Sound Setup 44
Video Signal Lost Alarm and Automatic Restore 45

3 Additional Information 50

3.1 Overview of the Touch Panel Control 50
Group Listing 51
System Status 52
Touch Control 52
Group Menu 53
Window Menu 54
Fine Tune Pos (position) / Size Tool Bar 54
Available Processor 55
Quit 56

A Configuring a PC for AviNET 57

A.1 Adding Windows Component 58
A.2 Configuring SNMP Service 61
A.3 Installing AviNET 63
A.4 Configuring the Cosmos Program 65
A.5 Configuring AviNET 66
A.5 Testing the System 67

Preface

About this Manual

This manual contains comprehensive information on the Cosmos program.

Throughout the manual, the following conventions are used to distinguish elements of text.

> **NOTE:** provides additional hints or information that requires special attention.

> **CAUTION:** identifies important information which, if not followed, may result in loss of data or damage to your device.

Any name of menu, command, icon or button that you can see on the screen is shown in a bold typeset. For example:

On the **Start** menu, select **Settings**.

1 Cosmos Program

1.1 Using the Cosmos Program

Cosmos is a feature-rich control and configuration software for the Avitech line of products. It uses a GUI (graphical user interface) for configuring and editing complex Multiviewer systems. Preset configurations can be created, edited, and recalled. Cosmos is designed to interface with third-party hardware such as routing switchers, production switchers, and Tally management systems allowing for dynamic label changes and Tally indicators on the display. The program contains a built-in alarm and fault reporting. When Cosmos is combined with the AviNet SNMP option the result is an extremely powerful control solution. Cosmos will run on virtually any computer running the Windows operating system.

1.2 Features

- Add modules or groups while the system is online.
- Assign audio monitoring on any source.
- Change any window to full screen view with a single click of a button.
- Configure Avitech's GPI interface.
- Control third-party routers, UMD integration with multiple third-party router control systems.
- Create analog or digital clocks with ability to countdown/count up timer.
- Customize labels, borders, background colors, and fonts (color and size).
- Make changes to the entire border or for each individual window.
- Manage multiple displays from a central user interface (up to 99 displays).

- Module status reporting.
- Pre-configure presets – 2×2, 3×3, 4×4, etc.
- Re-size and re-position any window.
- Save and recall customized presets.
- Place any window or module on Standby mode.
- Set the window aspect ratio / lock to 16×9 or 4×3.
- Setup remote control via network or RS-232 interface.
- Swap image to any position with a single click of a button.
- Tally interface with third-party switchers and Tally management systems.

Specifications

Items		Details
Version		4.5
Release Date		06-15-2009
Operating System Support		Windows 2000, Windows XP, Windows Server 2003, Windows Vista Business edition
Avitech Product Support	MCC-8004 Series	A / AL / AA / AAL D / DL / DE / DEL / DA / DAL / DD / DDL P / PL / PE / PEL / PA/ PAL / PD / PDL U / UL / UE / UEL / UA / UAL / UD / UDL Q / QL
	VCC-8000 Series	8002V / 8004V / 8004C / 8008C / 8004U / 8008U
Total IP Connection Support		20

1.3 Installation

- Hardware connections – refer to the hardware product user manual for details.

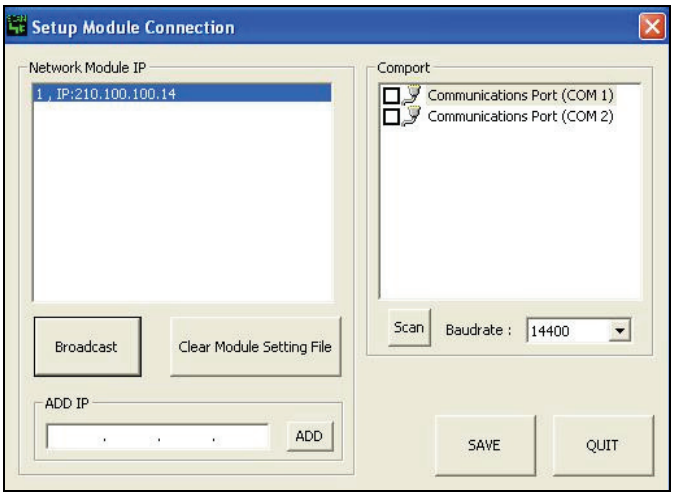
- Software installation – download the Cosmos program at **http://avitechvideo.com/download_software.asp#Cosmos**
  You can also browse the user manual at **http://avitechvideo.com/nmanual/Cosmos%20V4%20Quick%20Start%20Guide.pdf**

2 Configuring the Cosmos Program

2.1 Configuration

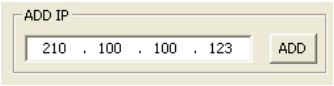
Before Starting the Cosmos Program

1. Run **`Scan_NetModules.exe`** first to set up the module connection settings. The following screen appears.



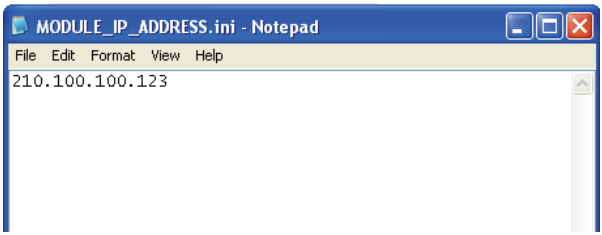
2. Set the IP connection (for MCC-8004, VCC8000, etc.).
   - Click **Broadcast** to include all local modules with different IP to the **Network Module IP** list.

- Enter the IP address manually on the **Add IP** window, then click **ADD**.



- Click **Clear Module Setting File** if want to erase the module's configuration with selected IP address.

3. Set the COM port connection (for Legacy models e.g., MCC-4).
   - Select a **COM Port** number from the window that is connected to the Avitech Multiviewers.
   - Click **Scan** to check for the module baud rate. Or select from the **Baudrate** drop-down list.
4. Upon clicking **Save**, a **`MODULE_IP_ADDRESS.ini`** will be generated. Double-click it to view or modify the IP address using the **Notepad** program.

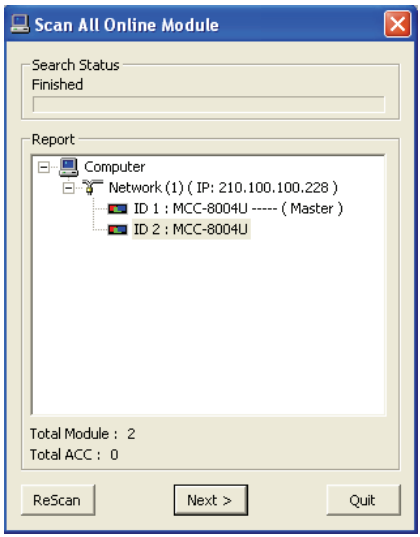


2.2 Starting the Cosmos Program

Perform the following steps to start-up the Cosmos program:

1. Scan for all available modules.

   - Upon double-clicking **`Cosmos.exe`**, the **Scan All Online Module** window will pop up and scan for available modules based on the IP address that is listed in **`MODULE_IP_ADDRESS.ini`**.

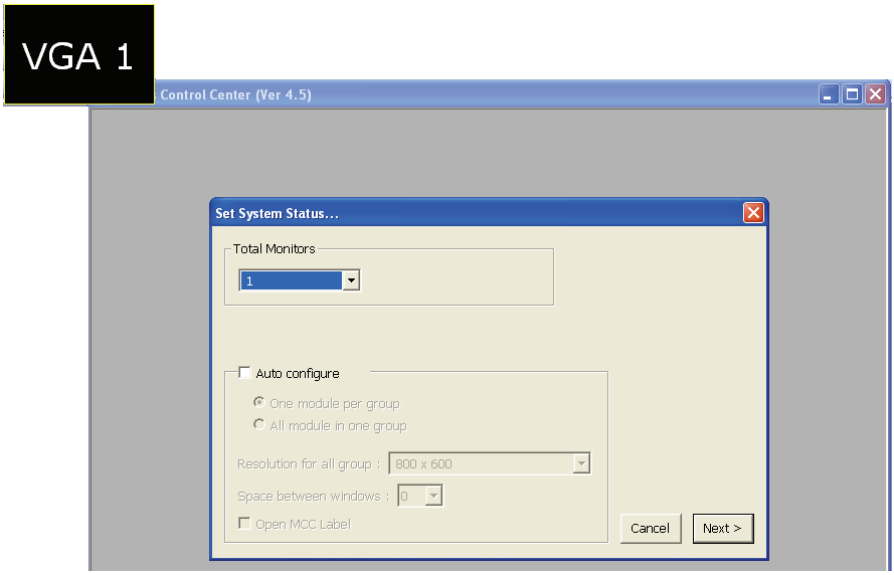


   - Verify if the Cosmos program detected all modules correctly.

> **NOTE:** The ID # is based on the modules' rotary ID + (add) 1. Make sure all IDs in each group are set sequentially.

   - Click **Rescan** if **Report** window shows up incorrectly. Click **Next** to move on to the next step. Click **Quit** to exit the Cosmos program.

2. Set the Group (monitor display).



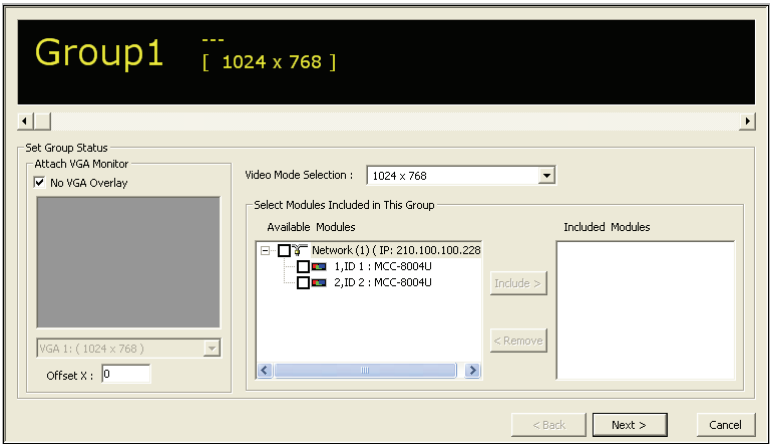
- Select the number of monitor displays on the **Total Monitors** drop-down list. Each monitor represent one group of modules.
- Click **Auto Configure** to shorten the setup process if you want to:
  – select **One module per group** to evenly split modules into different groups one after the other.
  – select **All module in one group** to monitor all modules together.

NOTE:
- If did not select **Auto Configure**, click **Next** and go to step 3 next.
- A group cannot exceed 15 modules.

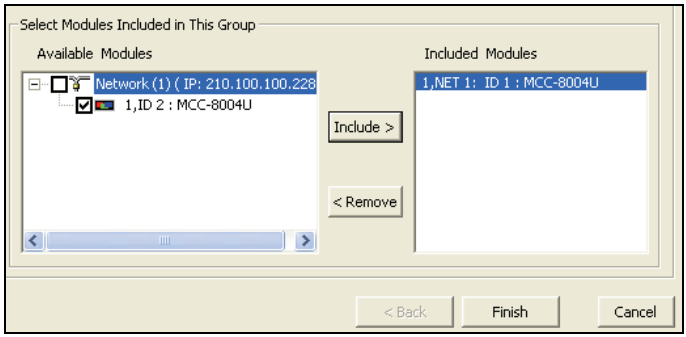
– select the same **Resolution for all group** in the drop-down window.

- Click **Cancel** to quit setup, or **Finish** to move on.

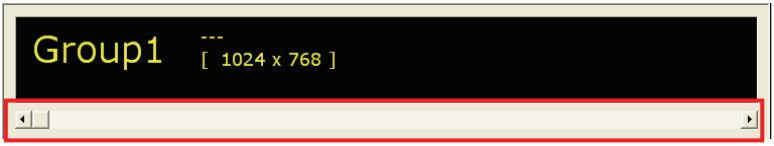
3. Select modules to each group (perform this step if you did not select **Auto Configure** in the previous step).
   - Start from **Group 1** and uncheck the **No VGA Overlay** checkbox if PC graphic background is required for monitoring.
   - Click the **Video Mode Selection** drop-down window to select the group's output resolution.



   - Click on the checkbox in front of a particular module number (**1** on the next sample figure) on the **Available Modules** list and click **Include** to move it to the **Included Modules** list (add to group). Click **Remove** to exclude the highlighted module from the group (**Included Modules** list).

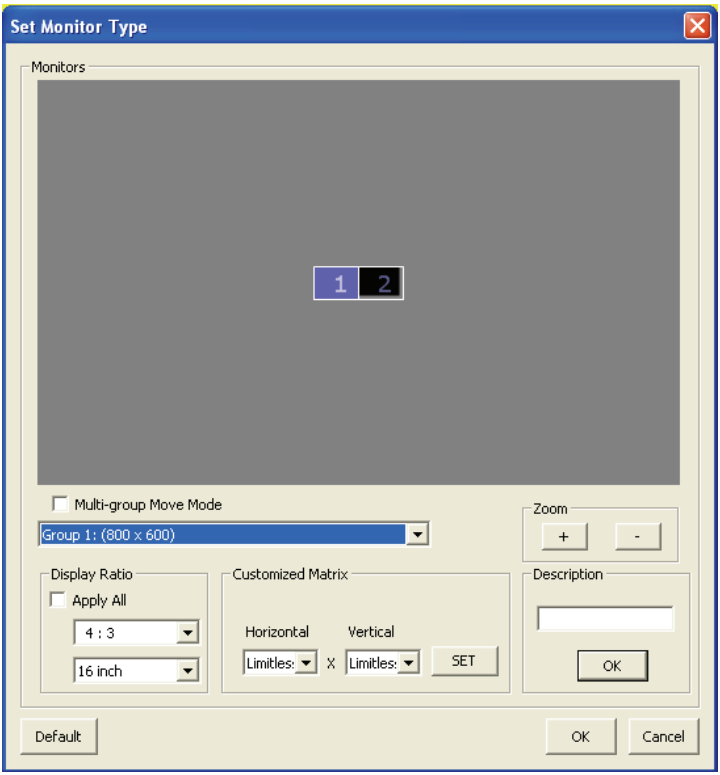


- Use the left – right scroll bar to perform group configuration setup for the next group.



- Click **Cancel** to quit setup, or **Finish** when setup is done.

4. Monitor the location. This window provides an overall view of all groups. Move the square box on the **Monitors** window to quickly find out where the groups are located.



- Click to select the **Multi-group Move Mode** checkbox to allow multiple group movement.

- **Display Ratio** portion includes the following:
  – **Apply All** checkbox will set all groups to the same configuration.
  – **4:3** / **16:9** drop-down menu sets the output display ratio.
  – **16 inch** ~ **90 inch** drop-down menu sets the monitor size.
- **Customized Matrix** portion allows users to arrange monitor displays (groups) in a customized matrix order. Use the drop-down window to set the **Horizontal** and **Vertical** matrix size. Then click **SET** to apply the changes.
- **Zoom + / –** allows you to zoom in (magnify) and out the monitor display's layout window.
- On the **Description** window type in a name for easier group identification.
- Click **Default** to reset to the manufacturer's default settings. Click **OK** to apply the settings, or **Cancel** to nullify the changes and quit.

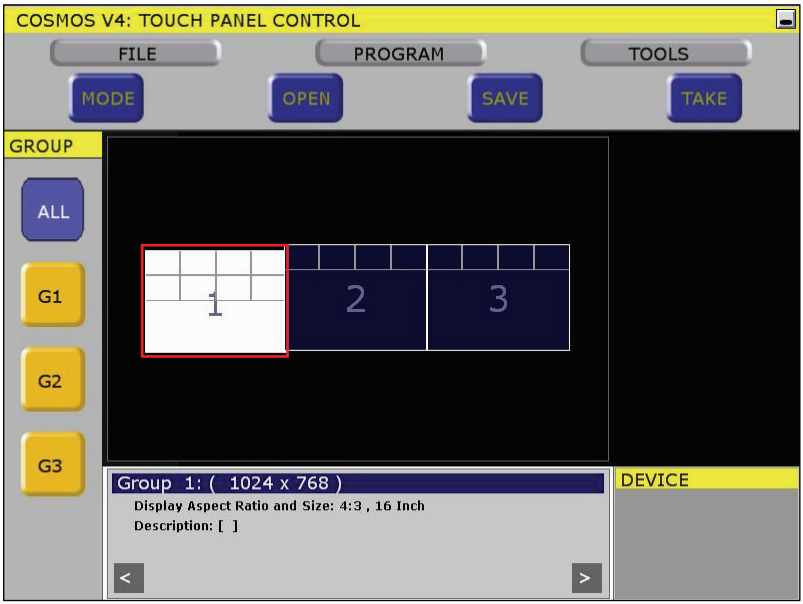
2.3 Module Control

Layout Control Mode

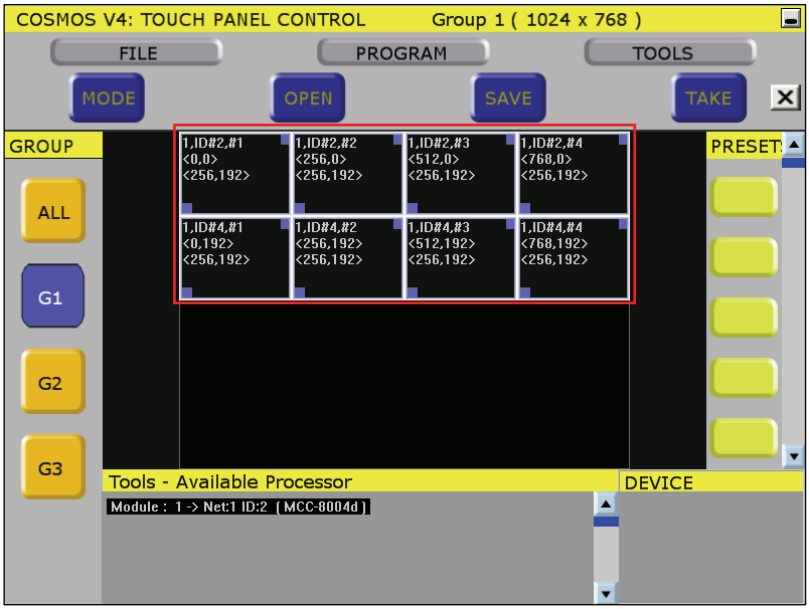
After finishing the initialization of system configuration, proceed to the Layout Control Mode (refer to the succeeding chapter for details).

Group Control

Click to select a particular group number on the center area.



Then program the selected group.

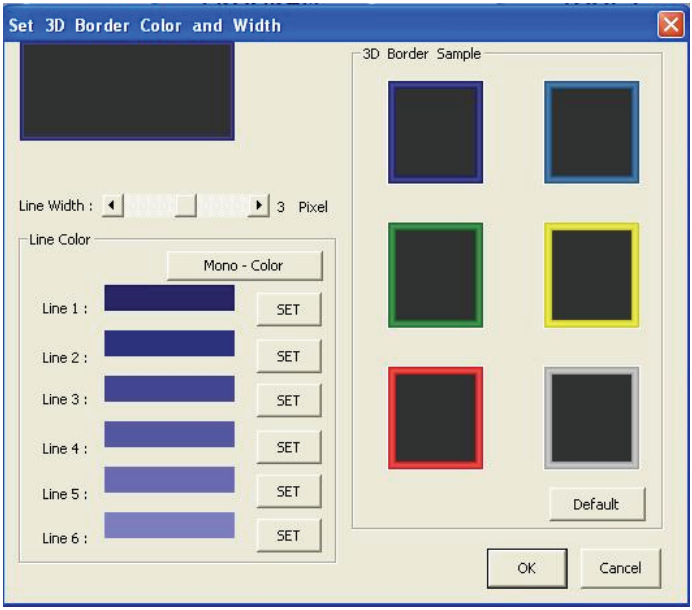


Global Settings

Upon clicking **Program** → **Global**, the parameters would apply to all modules in all groups.

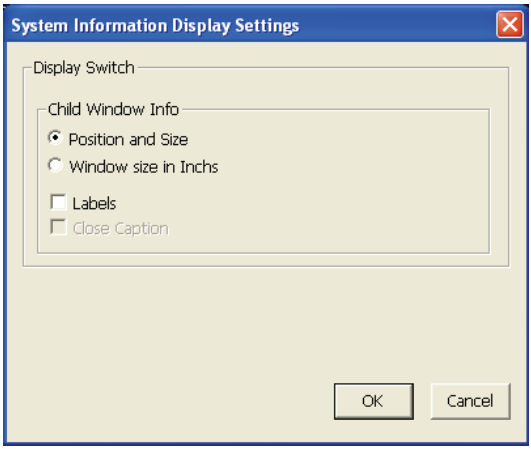
Set the 3D Borders

Adjust the border of all group windows, including the border line color and width.



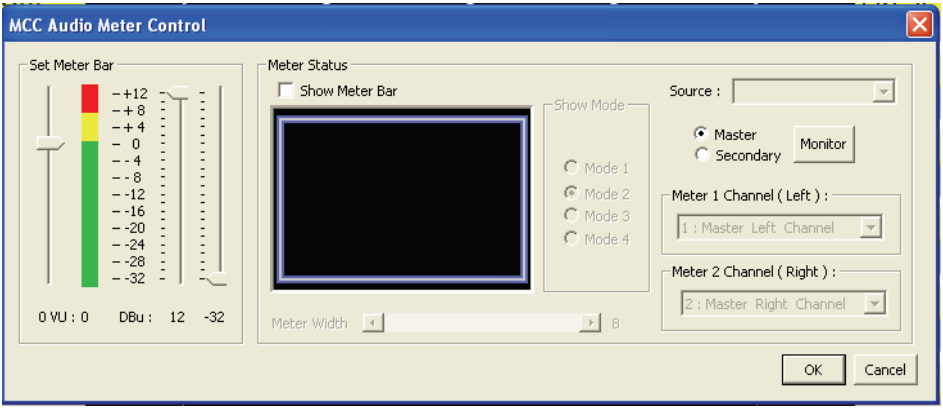
System Information

By default, all the labels are turned off when the Cosmos program initializes. To turn it on, make sure **Labels** is selected (checked) and click **OK**. You can then change the font, color, or size by selecting **Program → Global → Set Label Properties** (module font).



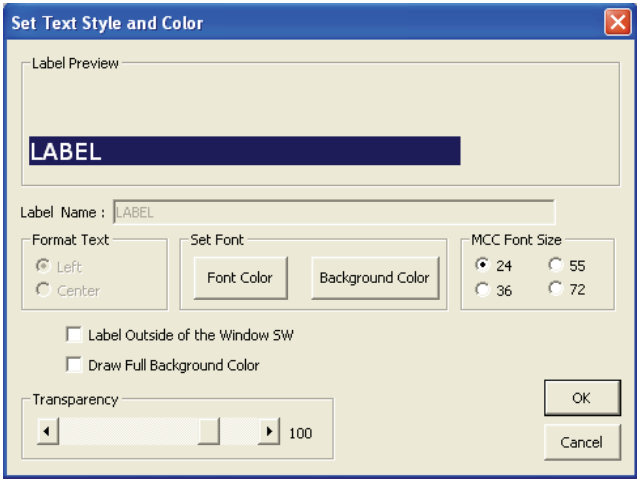
Set MCC Series (Legacy models) Audio Meters

The MCC series (Legacy models) is capable of displaying embedded audio as VU meters inside the video window. Embedded audio is divided up into two groups with a master and secondary channel for each group, allowing 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.

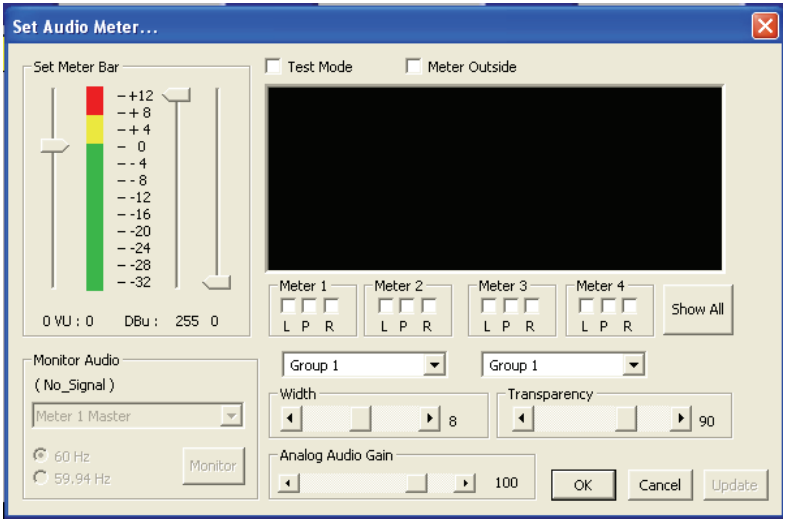


Set Label Properties

Shows a preview of the label and allows you to set the label properties (name, alignment, font color/size, background color, transparency, etc.).



Set MCC-8000 Series Audio Meters



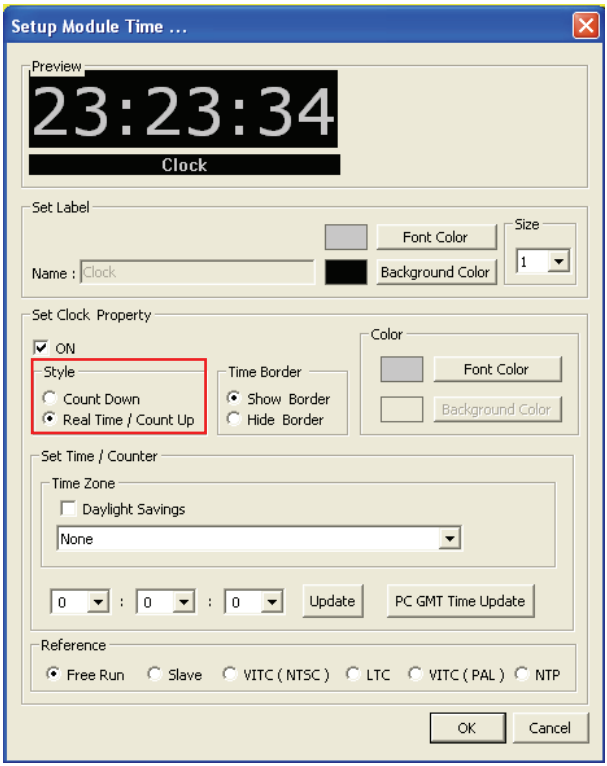
- The left slider on **Set Meter Bar** portion allows you to set the standard value (**VU**), while the two right sliders allows you to set the audio source maximum and minimum volume change (**DBu**).
- On the **Monitor Audio** portion's drop-down menu choose the audio meter you want to monitor.
- Click to enable the **Test Mode** checkbox that allows the meter ballistic display.
- Click to enable the **Meter Outside** checkbox that allows you to set meters outside the video source.
- For embedded audio, click **Show All** or click to select the checkbox (**Meter 1** ~ **Meter 4**) you want, then choose the audio group (**Group 1** ~ **Group 4**) on the first (left side) drop-down menu.
- For analog and AES audio, select the last checkbox (**Meter 4**), then choose **AA/AES** on the second (right side) drop-down menu.
- Then adjust the meter bar's **Width**, **Transparency**, and **Analog Audio Gain**.

Set MCC-8000 Series Time Clock

To turn on the clock function click the **ON** checkbox, then click to select either **Count Down** or **Real Time / Count Up** timer. You can also set the **Font** / **Background Color**, **Show** / **Hide Border**, and **Time Zone** (with/without **Daylight Saving** time when applicable).

To activate the time code feature, on the **Reference** portion click the mouse to select either **Free Run**, **LTC**, or **VITC (NTSC/PAL)**. You can also synchronize the clock from the slave module by clicking the mouse on **Slave** to select it. Then click the **Update** button.

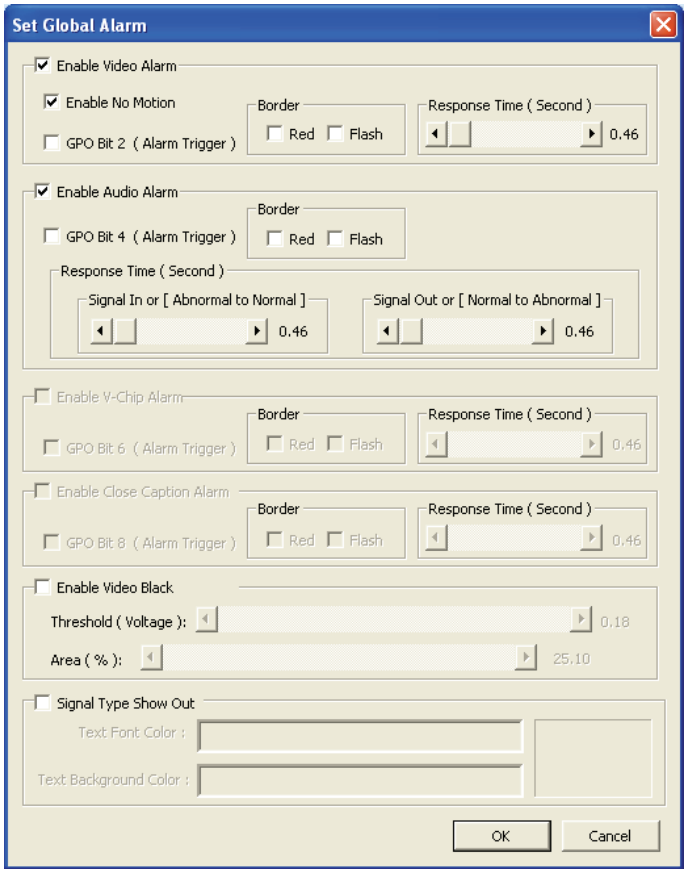
The **NTP** time code feature allows the MCC-8000 series to synchronize the clock with an external NTP time server. The **IP** port on the rear of the MCC-8000 series can control as well as receive time code information at the same time. Make sure that **Style → Real Time / Count Up** is selected. On the **Reference** portion click the mouse on **NTP** to select it.



Click **OK** to turn on the clock. The digital clock should appear in the top left corner of the monitor display. If there is a window there, you may need to move it aside to reveal the clock underneath.

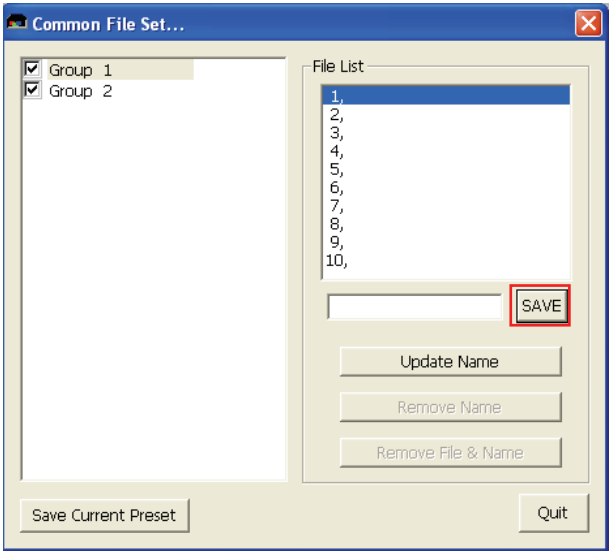
Set MCC-8000 Series Alarm Attribute

When the audio or video source has failed, the alarm will be triggered (border will turn to red or flash) and **GPO Bit 2/4 (Alarm Trigger)** will provide 5 V (when this option is selected).

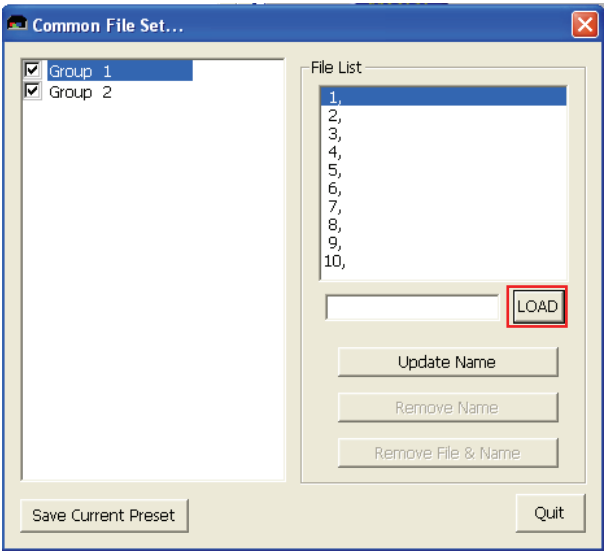


Create / Load Global Presets

This function can save your group setting (up to ten files). Select the **Group** ID number and file ID number on the **File List** window, then enter a filename in the text box. Click **Save** to save the listing to flash.
Update Name adds the filename to the **File List** of the system.
Remove Name erases the filename.
Remove File & Name erases the preset(s) from flash memory.

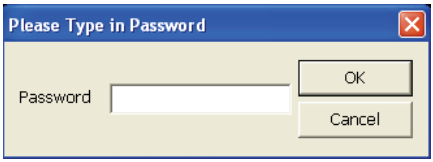


As well as load the group setting that you desire.

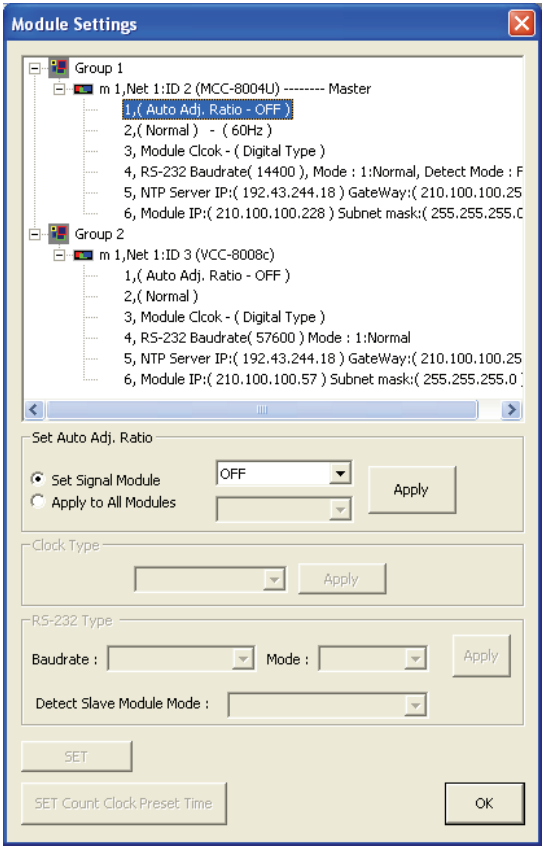


Module Setting

Provides all the system information. When the following **Password** window appears, type **avitech**.

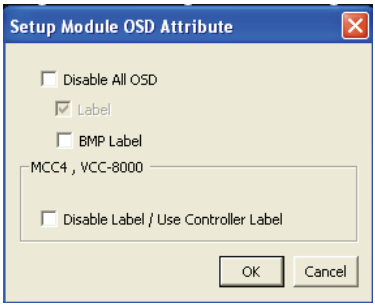


The relationship between **Group**, module (**m**), and window (**ID #**) can be set. You can also choose the **Clock** / **RS-232 Type**.



Set Module OSD Attribute

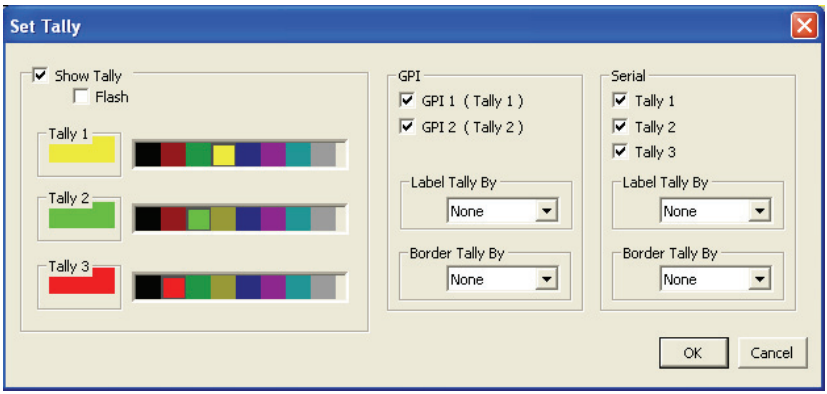
Click to select the **BMP Label** checkbox for non-English labels.



Set Module Tally Definition

Includes selecting the Tally color (enable **Flash**), the **GPI 1** / **2** (**Tally 1** / **2**), and **Serial** (**Tally 1** / **2** / **3**) checkbox. You can also set the function of **Label Tally** and **Border Tally** by selecting from the drop-down window.

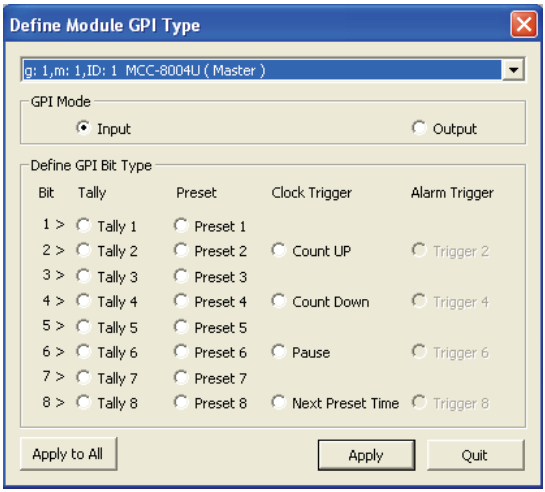
> **NOTE:** You can use a terminal block adapter to turn on/off Tally for each window.



Set Module GPI Definition

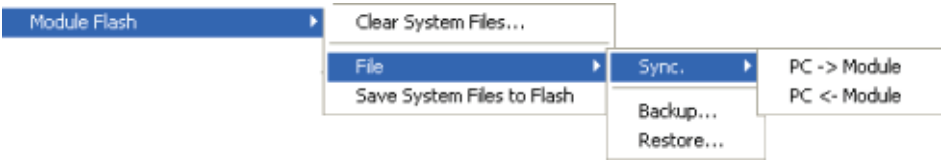
- Select the desired module on the top drop-down window.

- The **GPI Mode** feature can be used for **Input** or **Output** but not both simultaneously.
- By default, all eight contact closures are set aside for Tally, two for each video input. In other words, a video input can be represented by two bits (e.g., **Tally 1**, **Tally 2**).
- Other input functions include loading **Preset**s (**1** ~ **8**), and controlling the **Clock Trigger** (**Count Up**/**Down**, **Pause**, **Next Preset Time**).
- The **Alarm Trigger** feature (**2**, **4**, **6**, **8**) where 5 volt is supplied when a "no video" or "no audio" alarm is triggered.

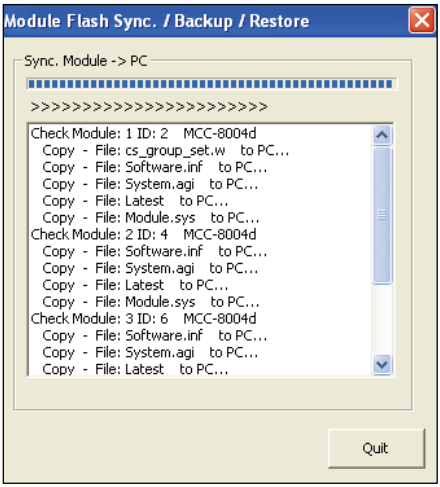


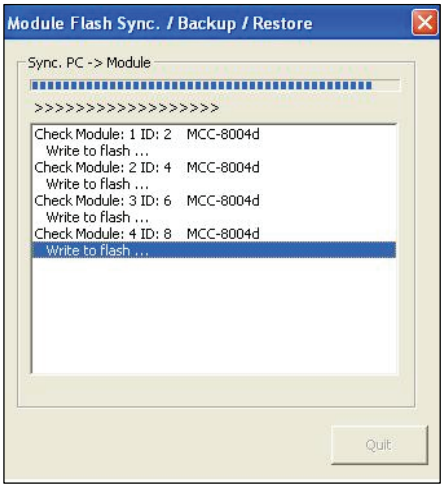
Module Flash

You can **Clear System Files** in the PC and save these to module flash memory. When synching (**Sync.**), a problem may be encountered when changing a particular module of the group (e.g., when the new module does not have the original data). Select **PC –> Module** to transmit the files. Or, if there is no backup (**Backup...**) data in the PC, select **PC –> Module** to rebuild files in the PC.



The following sample screens may appear.

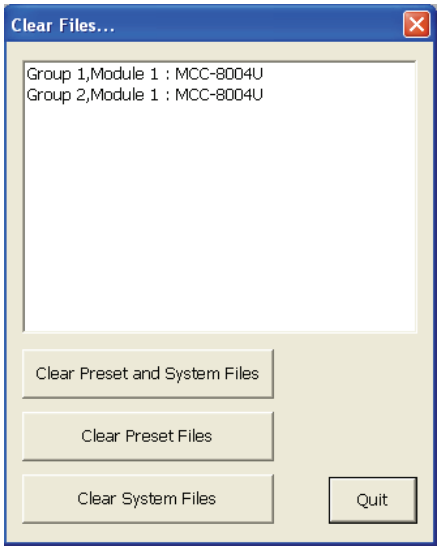




You can also **Backup** and **Restore File**s whenever necessary. When you need the files, just select **Restore** and choose the backup files.

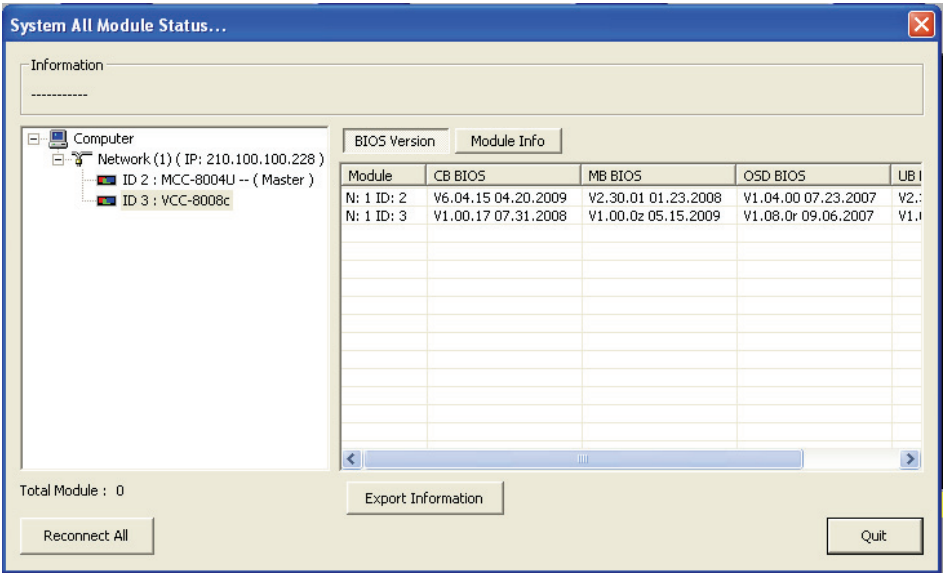
Clear System Files

Clear Preset Files removes the pre-configured settings from flash memory. **Clear System Files** removes the hardware system setup configurations. **Clear Preset and System Files** removes all.



Module Status and BIOS Version

Provides the group and module information, including each module's BIOS information. You can also check the network status if operating normally or not.

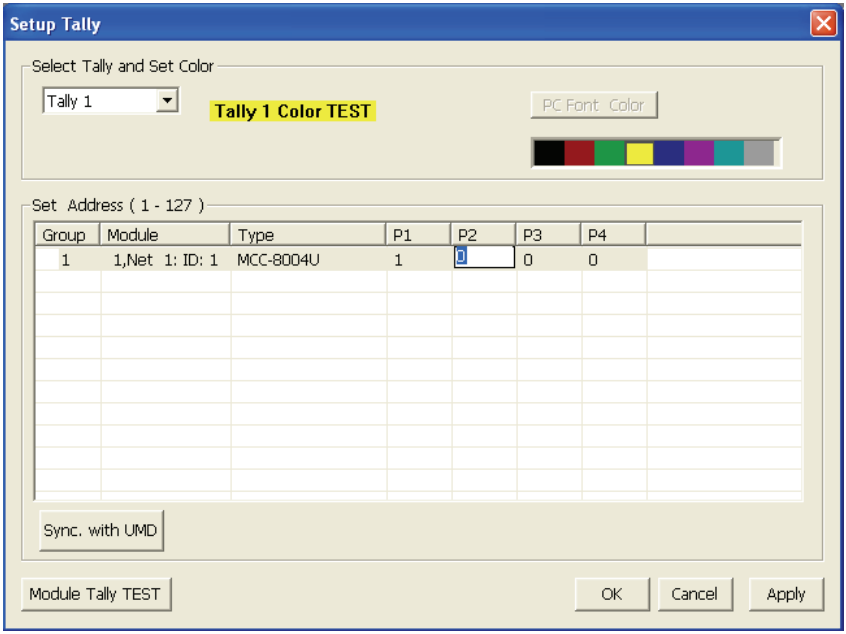


Tally Setting

Upon selecting the **Group #** on the center window, you may start to program the group.

In the next **Setup Tally** window, you can view the **Group**, **Module**, and **Type** information. **P1** ~ **P4** represents the four video inputs in the module. Select the **Address** number to examine the Tally.

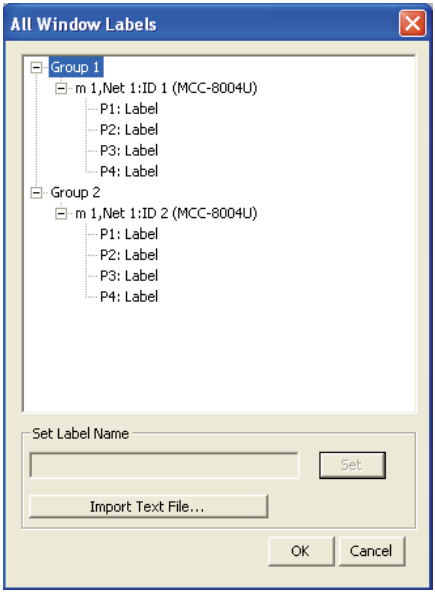
Click **Module Tally Test**, then select the Tally checkbox and enter the number, the window assigned will be displayed.



NOTE: The actual Tally address is from 0 ~ 126. But in the Cosmos program, it is from **1** ~ **127**. Therefore, always add one (1) when assigning the address for each input.

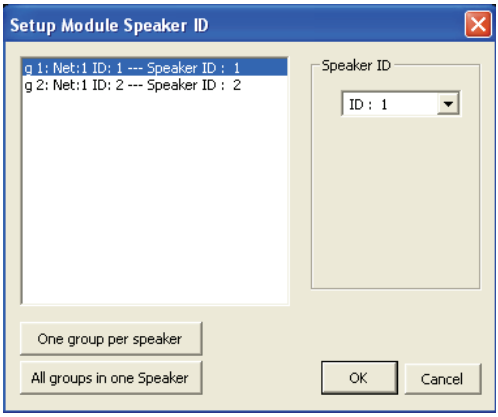
Setup All Module Labels

Allows you to **Set** the **Label Name** for each module. You can also **Import** from a **Text File** to set as the label name.



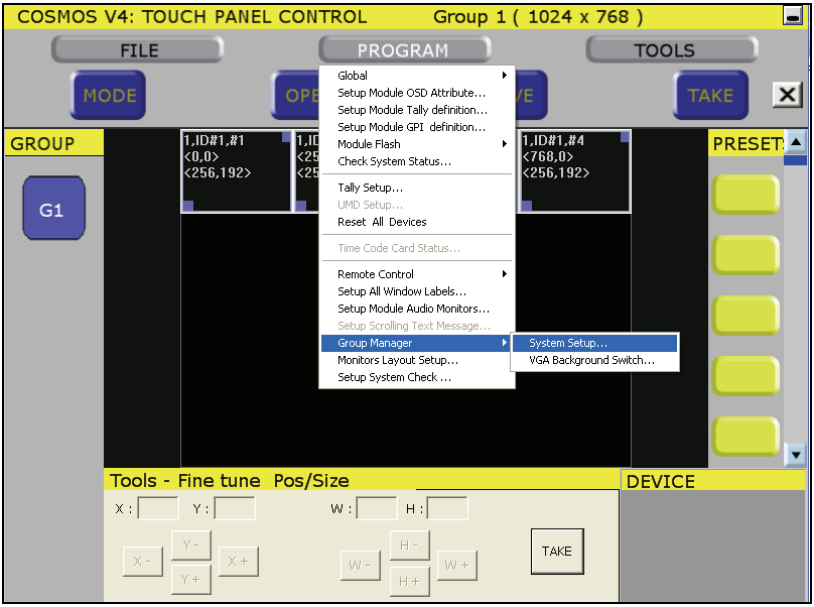
Setup Module Audio Monitors

Allows you to setup the module speaker to be able to listen to the audio output normally. Highlight the particular Group (**g**) and module (**ID**) on the left window, then select the **Speaker ID** for each module. Or, just click any of the two buttons: **One group per speaker** and **All groups in one speaker**.

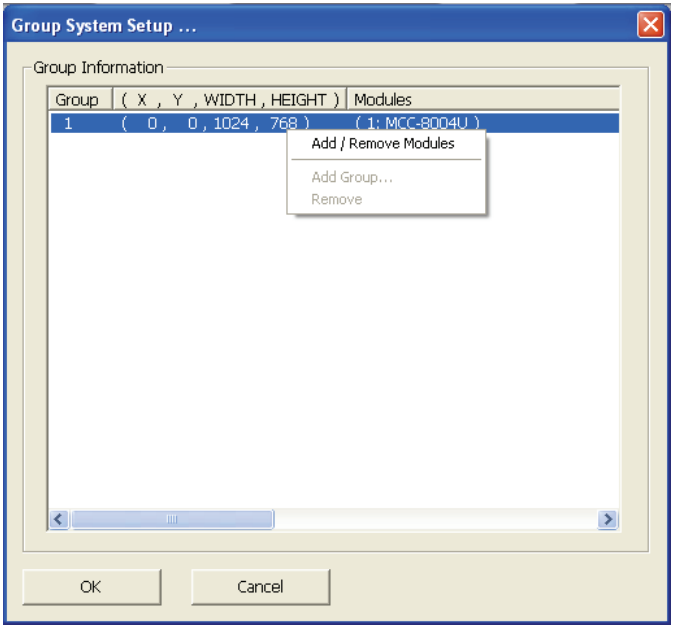


Group Manager: Module Re-grouping

1. Click **Program → Group Manager → System Setup**. The following screen appears.

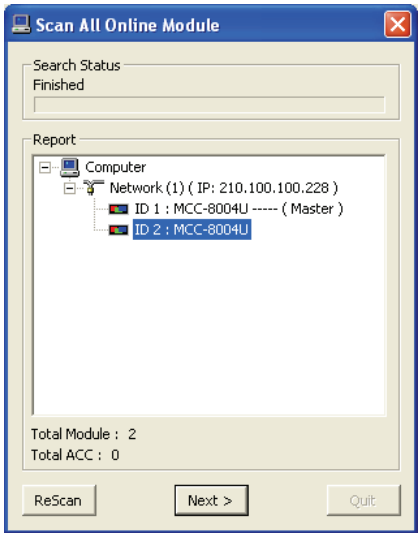


2. When the **Group System Setup** window appears, highlight the group that you wanted split into multiple groups, and then right-click it using the mouse.

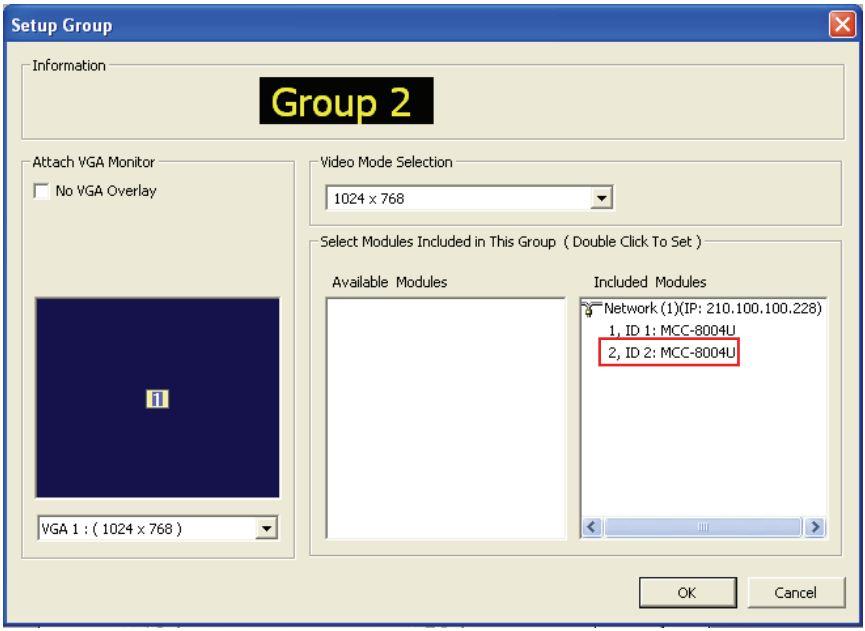


3. Click **Add / Remove Modules** to manage the existing groups. Enter the password **avitech** (not case sensitive) when prompted for it.

4. Cosmos program will perform system scan again (progress of scanning will be displayed). Make sure all modules are listed correctly. Then click **Next** when finished.

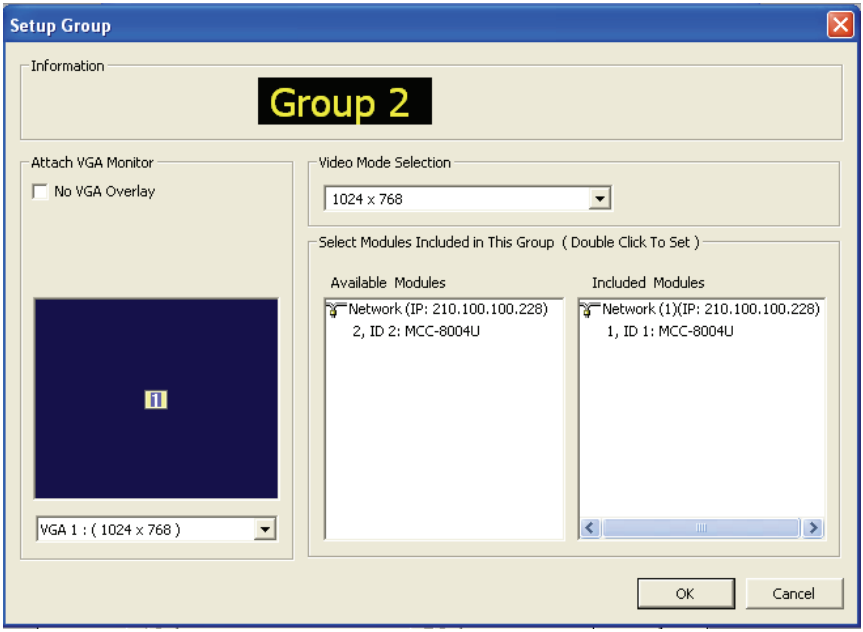


5. The **Setup Group** window will appear onscreen. Double-click to select the module on the **Included Modules** window (right side) that you wish to release from the second group (e.g., **ID 2**).



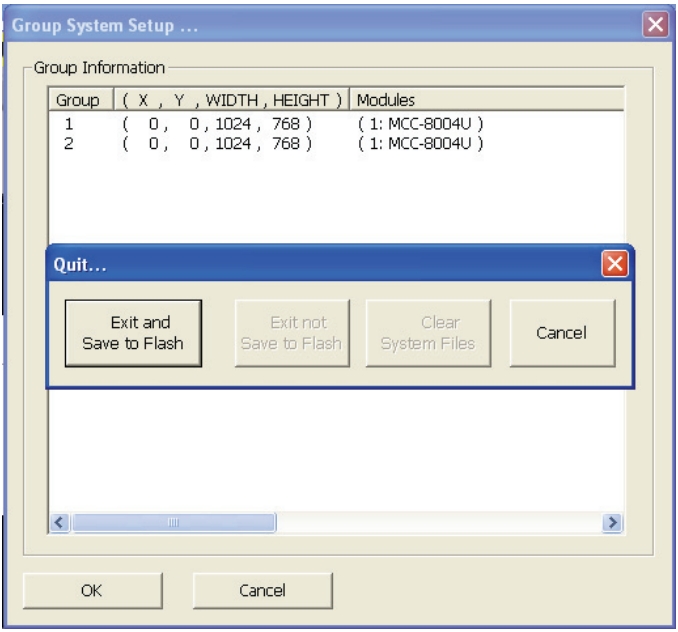
NOTE: Click the **No VGA Overlay** checkbox to disable the PC's background display when shown onscreen.

6. The selected module would now appear on the **Available Modules** window (left side).

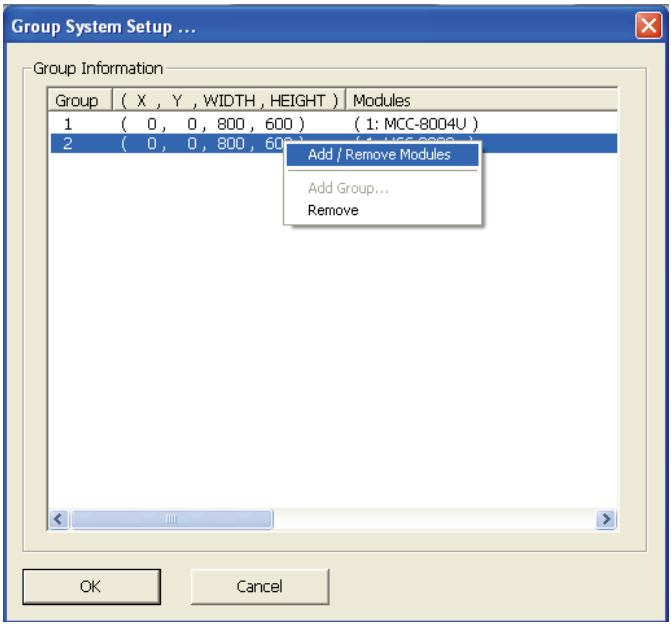


7. Repeat the above steps if you wish to remove the other module(s), then click **OK** when finished.

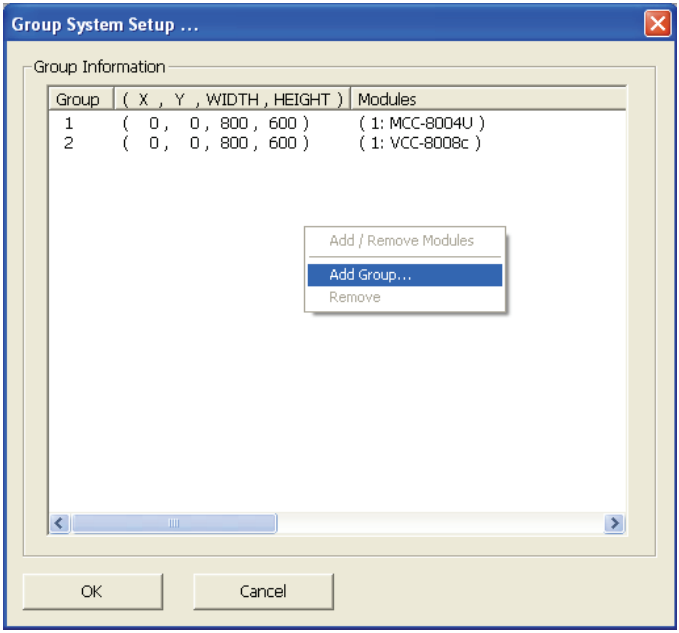
8. Click **OK** when the next screen appears. The Cosmos program will then prompt you to save the changes to the module flash. Click **Exit and Save to Flash** to close the Cosmos program.



9. Re-start the Cosmos program and return to **Group Manager → System Setup** to add the released modules to other groups by selecting **Add / Remove Modules** from the right-click menu.

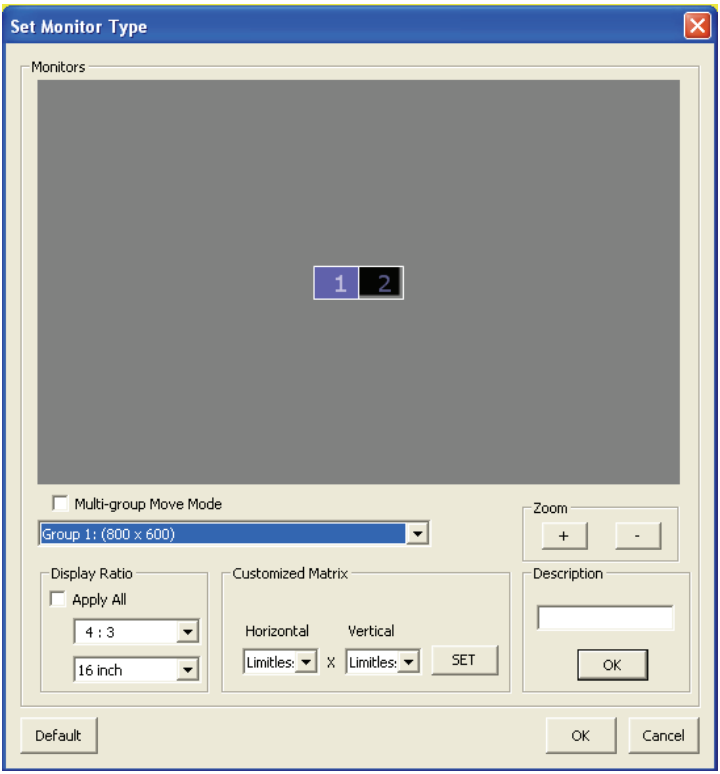


Or, create a new group by right-clicking the mouse on a blank portion and select **Add Group**.



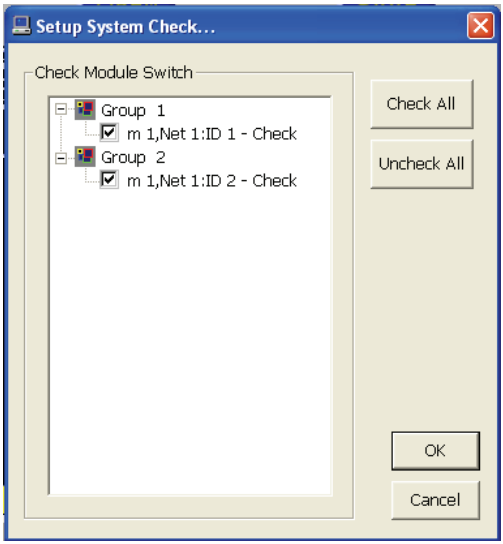
Module Layout Setup

Refer to a previous section “Starting the Cosmos Program” for details.



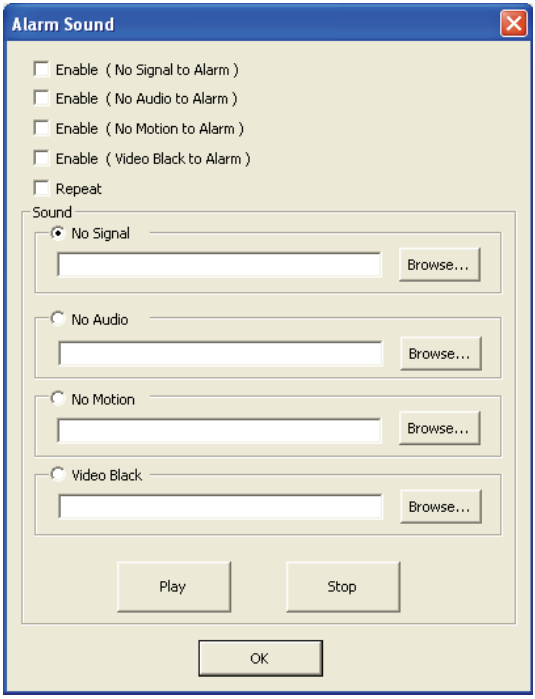
Setup System Check

Allows you to perform system check by selecting the module (**m**) checkbox under each **Group**. Click **Check All** to automatically select all available module(s) of all available group(s) and click **Uncheck All** to deselect all checkboxes. Then click **OK**.



Audio Alarm Sound Setup

Upon clicking **Program → Alarm Sound Setup**, the **Alarm Sound** window will appear onscreen.



The audio alarm can be set when any of the following four events occurs:

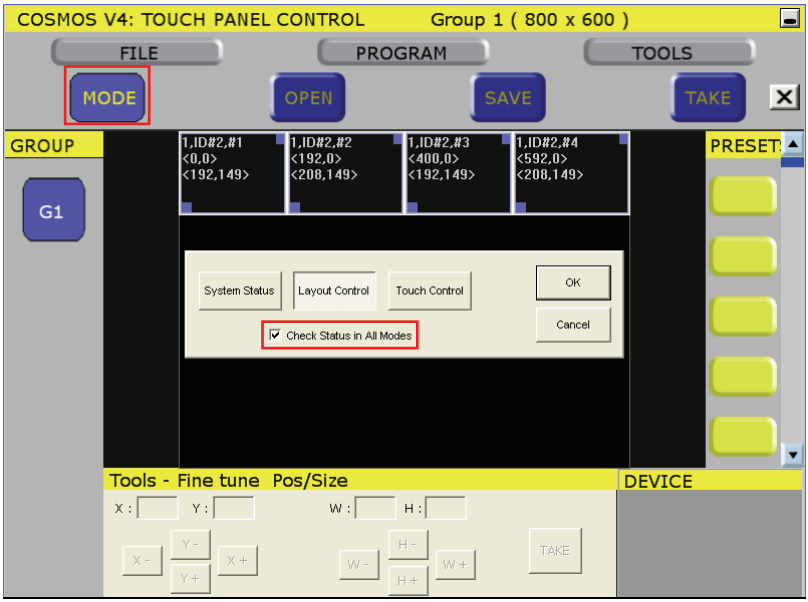
- No video signal is detected
- No audio signal is detected
- No motion is detected
- Video black

Select an audio clip to be played once when any of the above particular events occur.

Click the **Repeat** checkbox to enable the audio clip to continue looping (manually closing the audio is required).

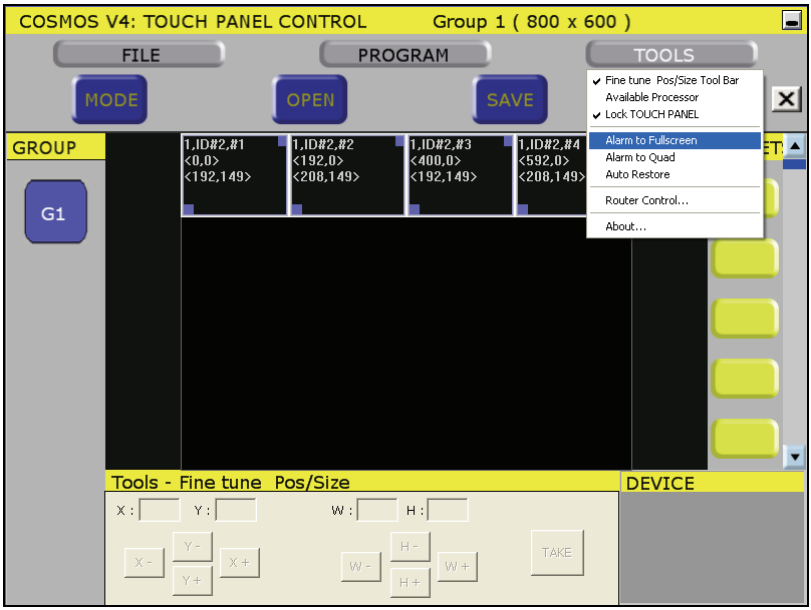
Video Signal Lost Alarm and Automatic Restore

NOTE: To enable these functions click the **MODE** button, then click to enable the **Check Status in All Modes** checkbox.

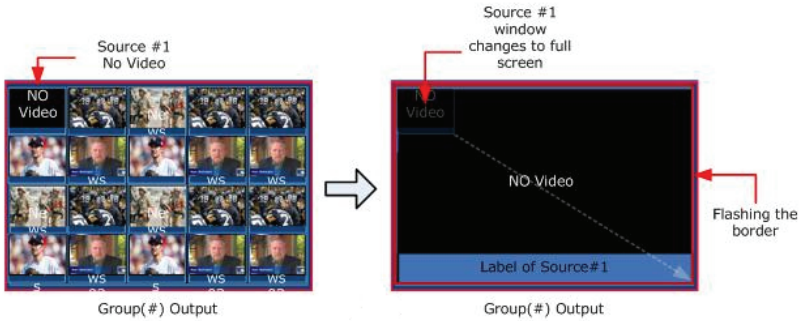


Alarm to Full Screen

Click **TOOLS → Alarm to Full Screen** to enable video signal lost alarm detection and window display in full screen mode.



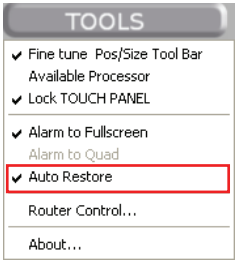
Upon enabling **Alarm to Full Screen,** the Cosmos program will run real time video signal lost detection. When a video signal lost event occurs, the particular window will fill up the whole screen and the border will flash in red.



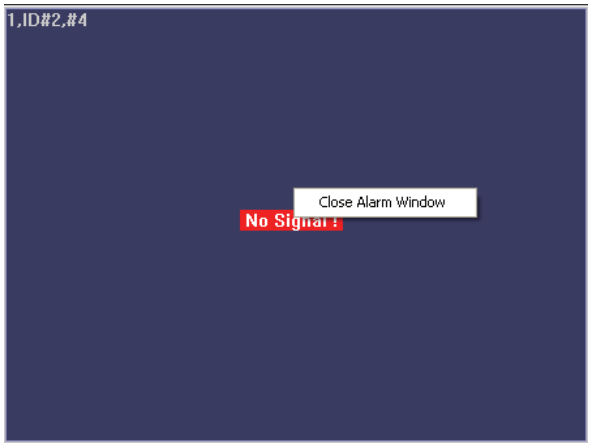
Video signal lost detection will continually take place, and the monitor display will simultaneously be updated.

Automatic Restore

Click **TOOLS → Auto Restore** if you wish the alarm window to revert back to its original position (original size) once the video source is restored.



When **Auto Restore** is not enabled, the alarm window will remain in full screen mode until you right-click the window and click **Close Alarm Window**.

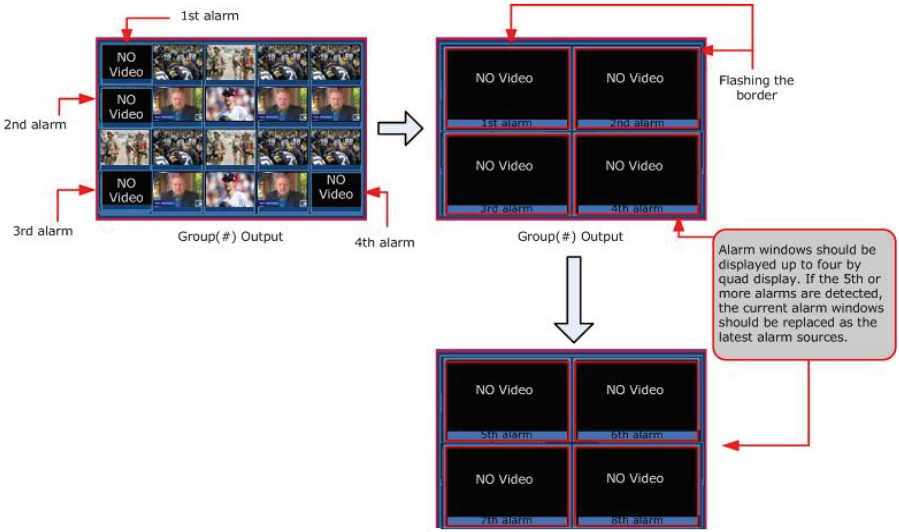


NOTE: When the video signal source returns during full screen mode, the display will be centered on the monitor screen with 1024×768 or lower resolution.

Alarm to Quad Display

Click **TOOLS → Alarm to Quad** to enable video signal lost alarm detection and window display in Quad mode.

Upon enabling **Alarm to Quad**, the Cosmos program will run real time video signal lost detection. When a video signal lost event occurs, the particular window will fill up the whole screen and the border will flash in red. When more than one video signal lost event occurs, the output display layout will change to quad display mode. The first alarm window will resize and move to occupy the upper left position. The second alarm window will resize and move to occupy the upper right position. The remaining two lower black (empty) positions will remain that way until another video signal lost event occurs (third and fourth).

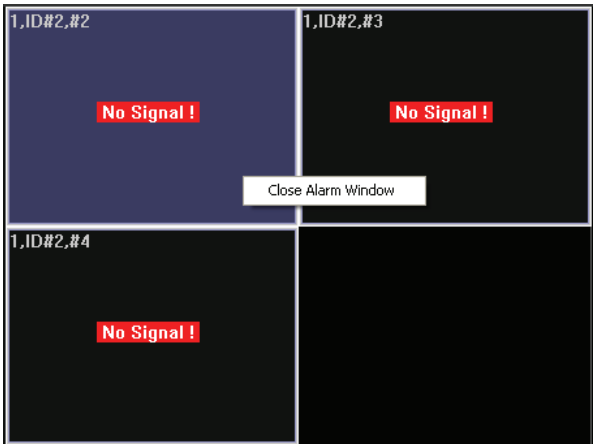


When the fifth and succeeding alarms are detected, the output display window sources will be replaced with the latest four alarm sources.

Automatic Restore

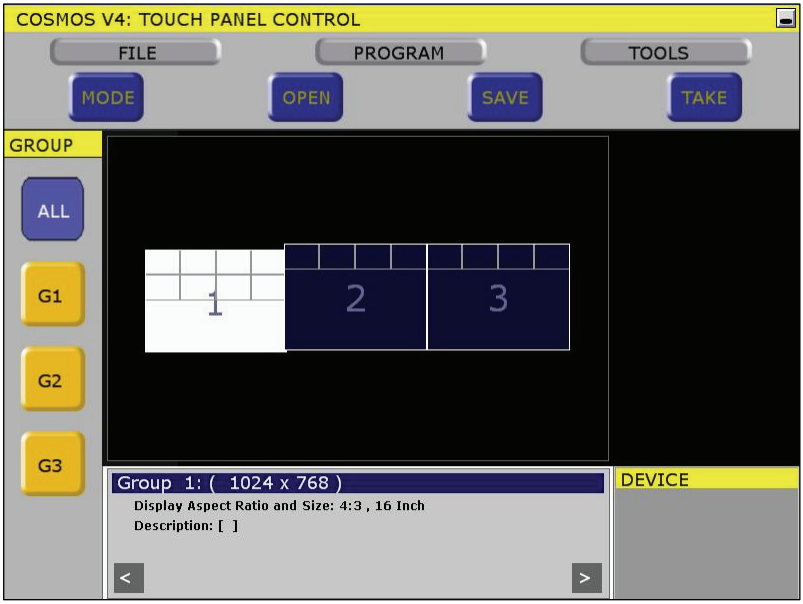
Click **TOOLS → Auto Restore** if you wish the alarm window to revert back to its original position (original size) once the video source is restored.

When **Auto Restore** is not enabled, the alarm window will remain in quad display mode until you right-click the window and click **Close Alarm Window**.



3 Additional Information

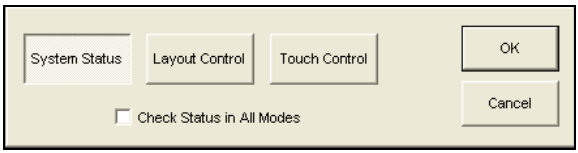
3.1 Overview of the Touch Panel Control



The **Cosmos** program screen consists of the following:

- **FILE** – click this button to save group presets and to import/export labels.
- **PROGRAM** – click this button to specify commands of control modules.
- **TOOLS** – click this button to adjust the window position and size, find out the available processor, and switch the alarm to full screen mode.

- **MODE** – the Cosmos program consists of the following three modes:
  – **System Status** mode that allows you to monitor the status of the system
  – **Layout Control** mode that allows you to make changes to the layout and appearance of the windows
  – **Touch Control** mode that allows you to interface with the Cosmos program through a touch panel LCD.

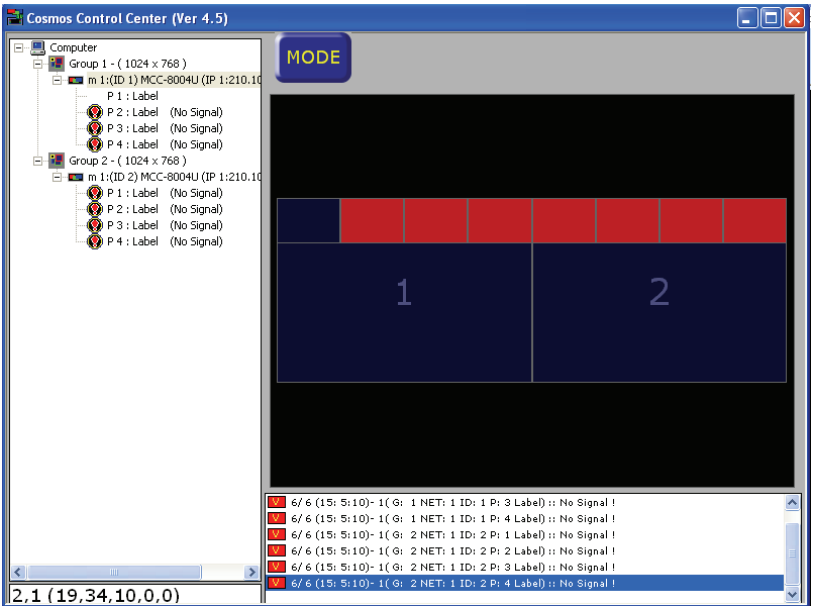


- **OPEN** – click this button to open a previously saved configuration.
- **SAVE** – click this button to save the present configuration.
- **TAKE** – after making any changes on the **Touch Panel Control** screen, make sure to click this button to update the group display.

Group Listing

Click the **G#** (**G1** / **G2**) button to access a certain group for module control. When a group is currently active, the button will turn to blue color. When it is not being accessed, it will remain in orange color.

System Status

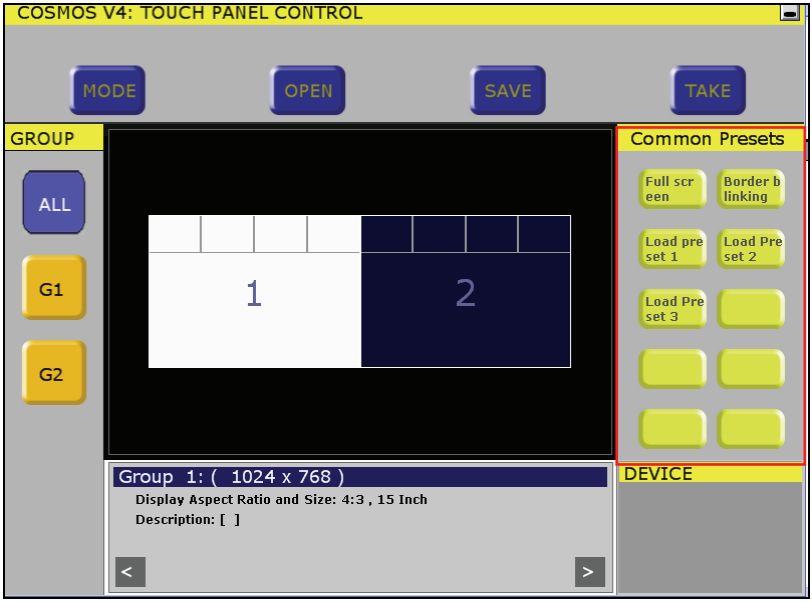


System status displays the real time connection status. The upper left panel contains a directory tree that shows all modules' name, resolution, IP address, and status. The upper right panel displays the layout status. The lower right panel displays the error logs. The lower left panel is for debugging purposes.

Touch Control

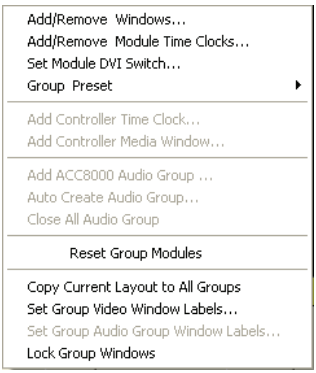
- The touch panel allows you to perform preset calling, such as maximizing the window to full screen mode, swapping window content, and also for outputting audio.
- The output resolution needs to be set at 800×600 before the VGA is connected to the controller.

- If the touch panel is not responding to touches, follow the directions to re-detect the touch panel.



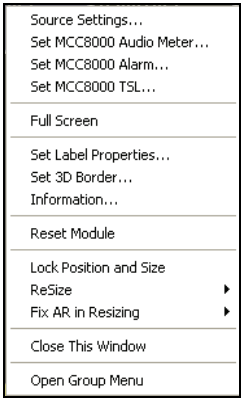
Group Menu

Right-click the mouse on a black space to access this menu, options appearing in the menu will affect only the selected group.



Window Menu

Right-click the mouse on a window to access this menu, options appearing in the menu will affect only the selected window.

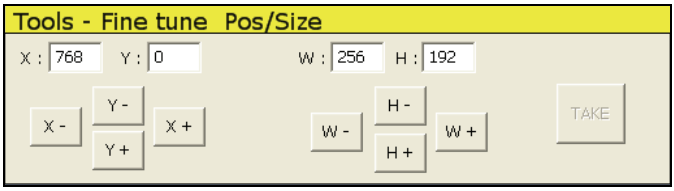


Fine Tune Pos (position) / Size Tool Bar

Located on the lower center portion, you may fine tune the window position and size.

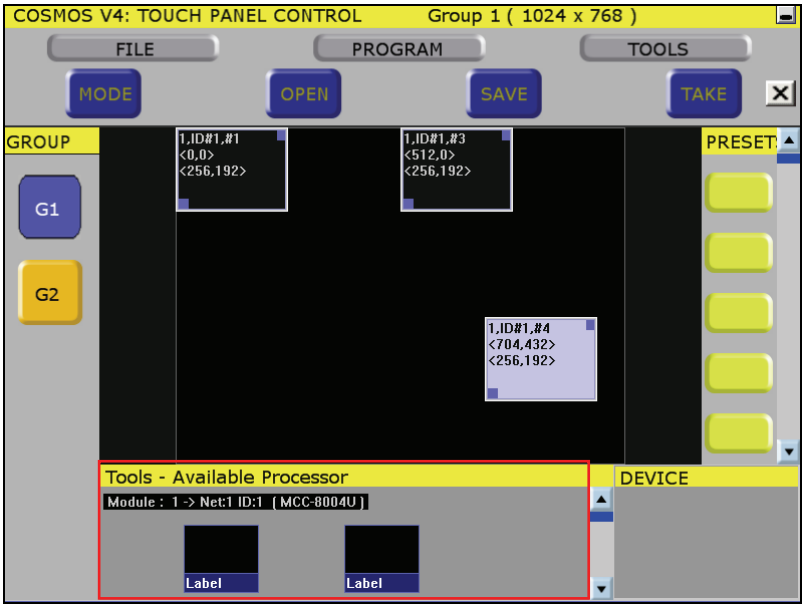
- **X** pertains to the horizontal position (**0** ~ **800** pixel)
  X + nudges the window towards the right
  X – nudges the window towards the left
- **Y** pertains to the vertical position (**0** ~ **600** pixel)
  Y + nudges the window towards the top
  Y – nudges the window towards the bottom
- **W** pertains to the window's width
  W + increases the window's width
  W – decreases the window's width

- **H** pertains to the window's height
  H + increases the window's height
  H – decreases the window's height



Available Processor

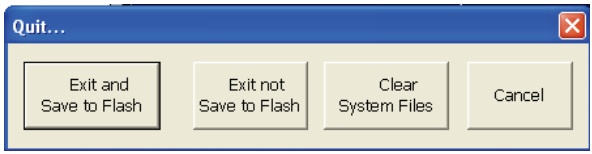
When you closed a processor (window) for future use, click **Tools → Available Processors** to display all closed windows. Drag and drop window(s) to the center area to turn on the closed window(s) for monitoring. This is used to replace monitoring windows that have already lost its input signal.



Quit

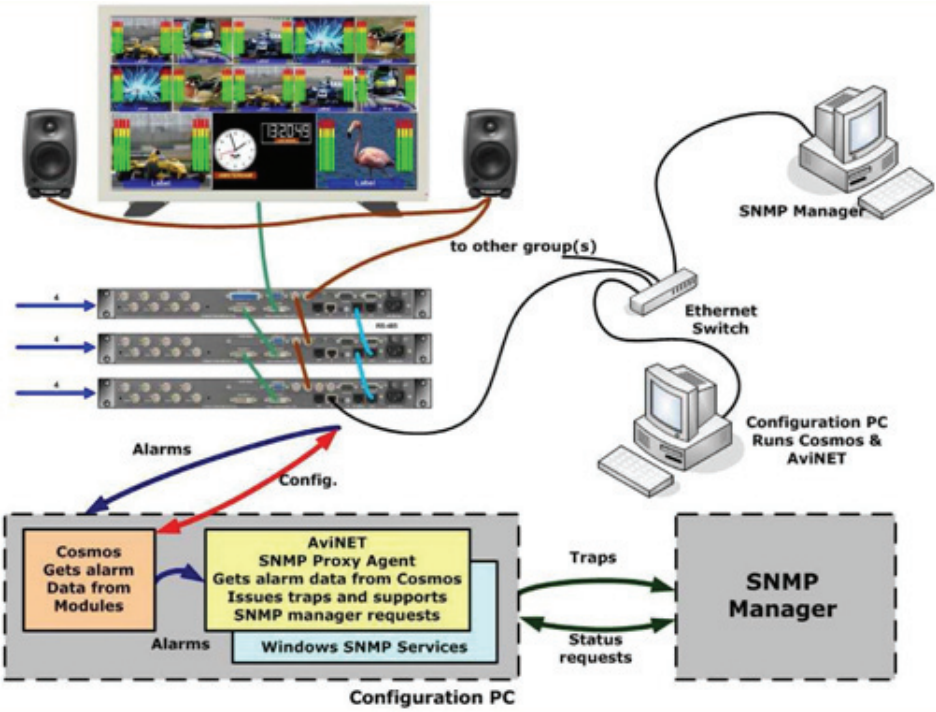
Upon selecting **Quit**, select the following options:

- Exit and save configuration to flash memory
- Exit but do not save configuration to flash memory
- Clear the system files
- Cancel quit option and return to the Cosmos program



A Configuring a PC for AviNET

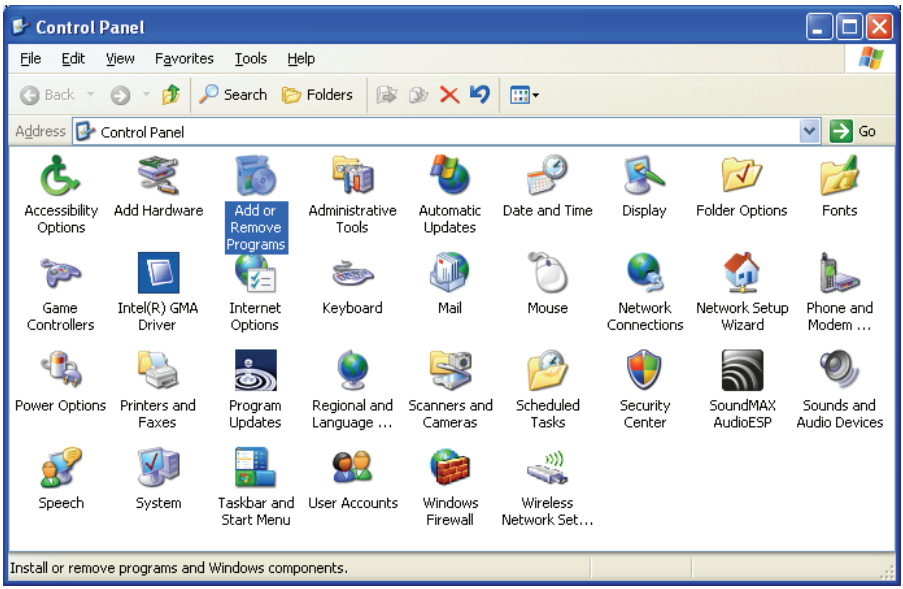
This chapter familiarizes you with configuring a PC for AviNET. The following figure shows a typical configuration.



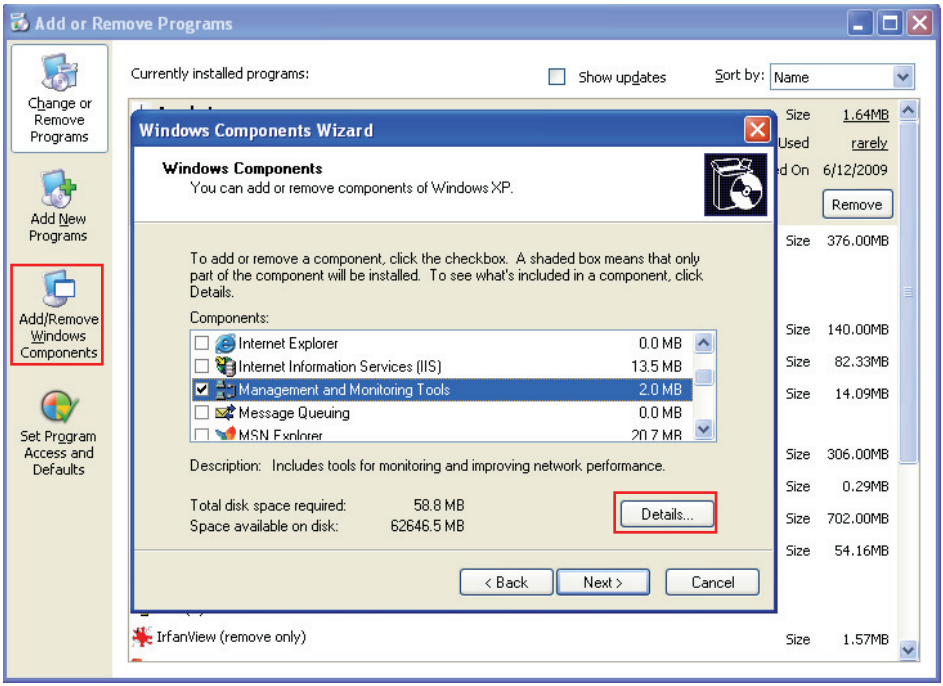
A.1 Adding Windows Component

Perform the following steps to add Windows component:

1. On your Windows desktop, click **Start → Control Panel**.
2. When the **Control Panel** window appears, double-click the **Add or Remove Programs** icon.

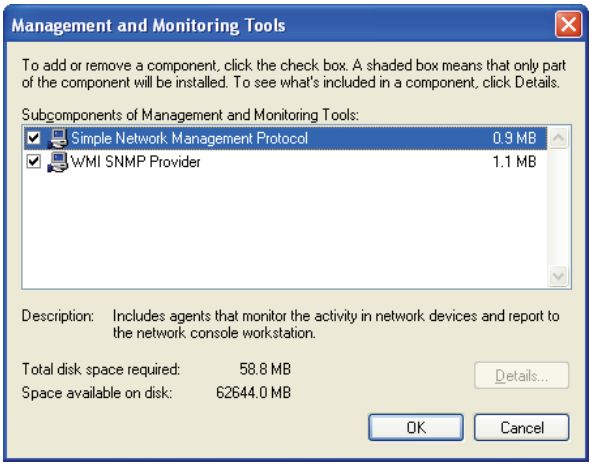


3. When **Add or Remove Programs** window appears, click the **Add/Remove Windows Components** icon and the **Windows Components Wizard** window appears.

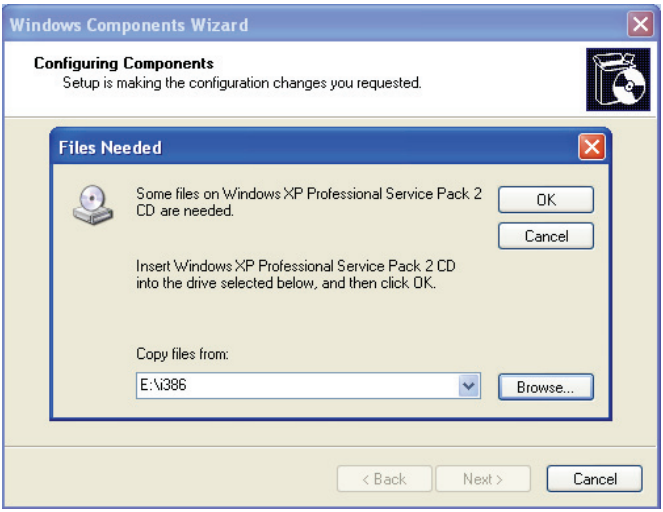


4. Select and click the checkbox for **Management and Monitoring Tools**, then click **Details**.

5. When the **Management and Monitoring Tools** window appears, make sure that both **Simple Network Management Protocol** and **WMI SNMP Provider** options are selected (with checkmark), then click **OK**.



6. Click **Next** to install the components and when prompted for the **`I386`** folder, place the Windows XP installer disc into the optical drive and locate it in the disc (**`\i386`** folder).

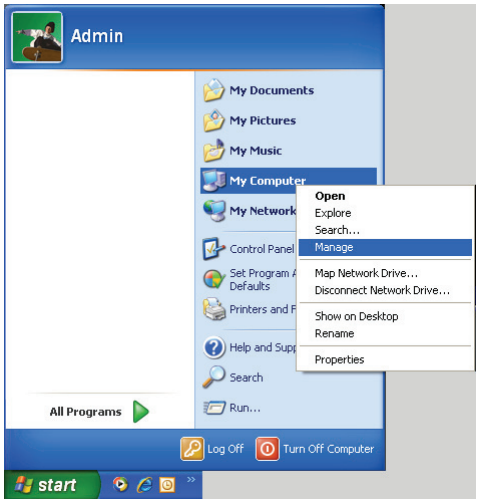


7. Click **Finish** to exit the installer.

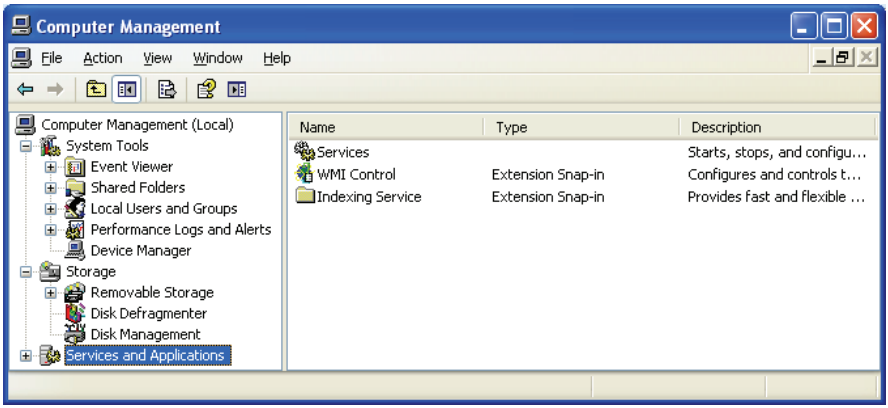
A.2 Configuring SNMP Service

Perform the following steps to configure for SNMP services:

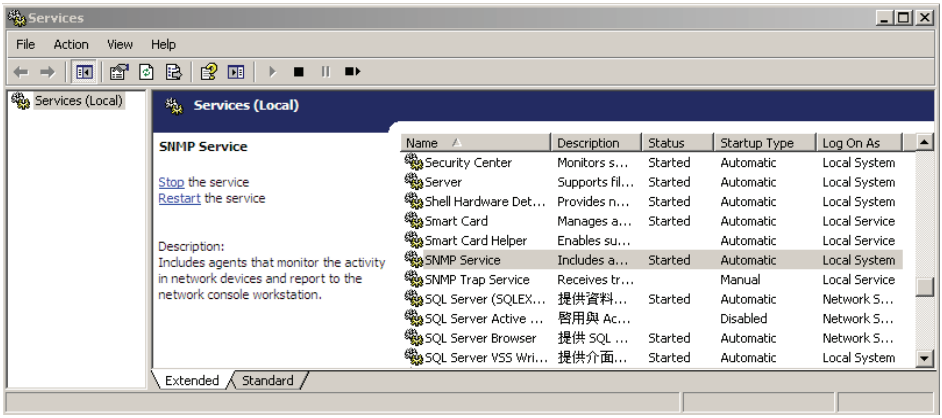
1. On the Windows desktop click **Start**, then right-click **My Computer** and select **Manage**.



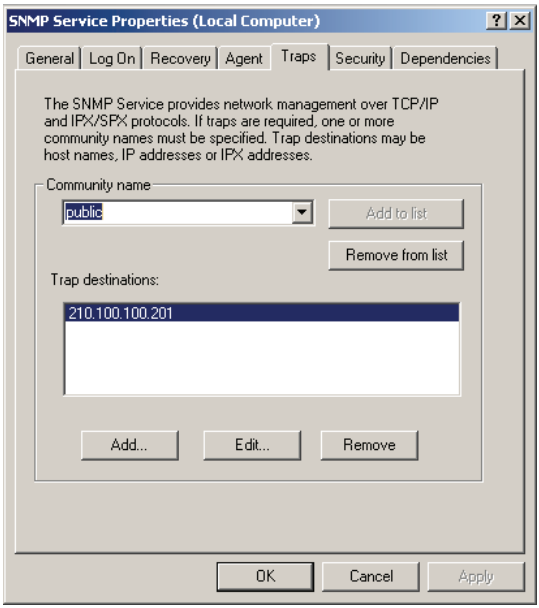
2. Click **Services and Applications** and then select **Services**.



3. Double-click the **SNMP Service** item.

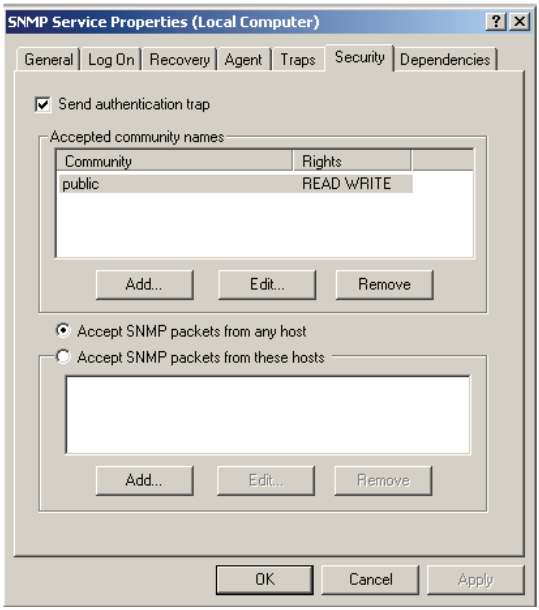


4. Select the **Traps** tab and enter **public** for **Community name**.



5. Add the IP address of the SNMP manager in **Trap Destinations**.

6. Select the **Security** tab and click to select **Send authentication trap**.



7. Change the permission for **public** to **Read Write**.
8. Select **OK** to finalize the changes.
9. Reboot the PC.

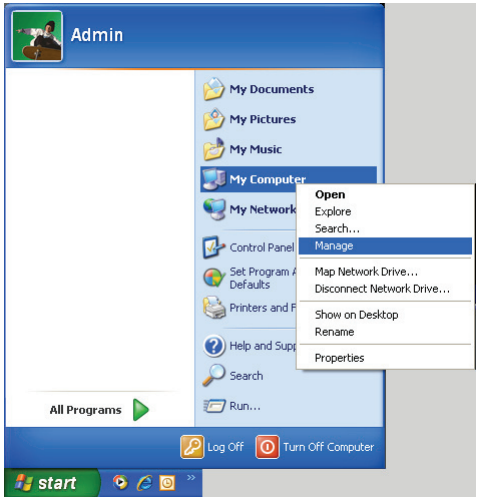
A.3 Installing AviNET

Perform the following steps to install AviNET:

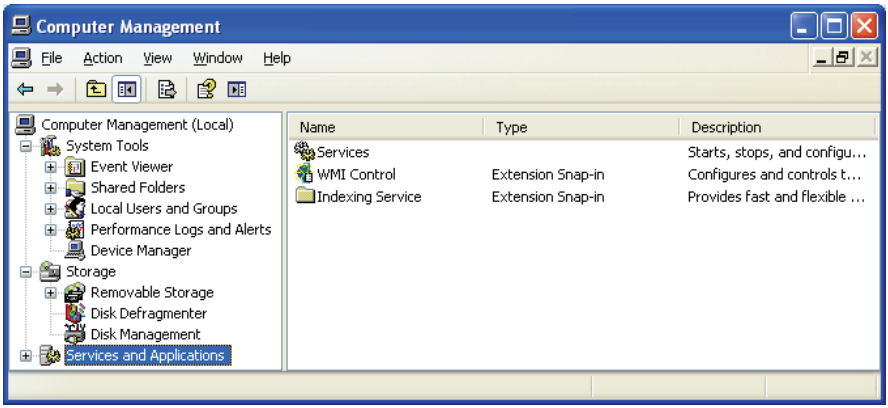
1. Copy the folder **`AviNET`** to the PC's **`C:\`** drive.
2. Copy the **`snmpexfrm.dll`** and **`avinet.dll`** files to the **`C:\Windows\System`** folder.

> **NOTE:** For Windows 2000, the directory for storing both **`dll`** files will be at the **`C:\Winnt\System`** folder.

3. To start SNMP service, on the Windows desktop click **Start**, then right-click **My Computer** and select **Manage**.



4. Click **Services and Applications** and then select **Services**.



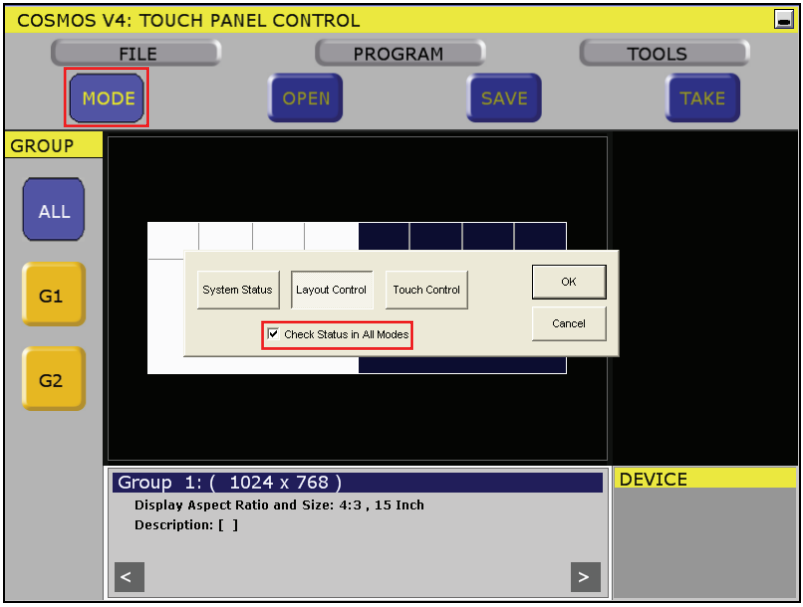
5. Locate the **SNMP Service** to start the service. If it has already started, stop and then restart the service.

6. Run **`avinet.reg`** to update the registry.

A.4 Configuring the Cosmos Program

Perform the following steps to configure the Cosmos program:

1. Launch the Cosmos program.
2. Create the modules' configuration (refer to a previous chapter for details).
3. Make sure that the Cosmos program alarms are enabled (**Program → Global → Set MCC-8000 Alarms**).
4. Select **Mode**.
5. Make sure that **Check Status in All Mode** is enabled (with checkmark).

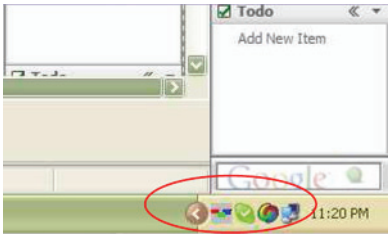


6. Select **OK** to finalize the changes.

A.5 Configuring AviNET

Perform the following steps to configure AviNET:

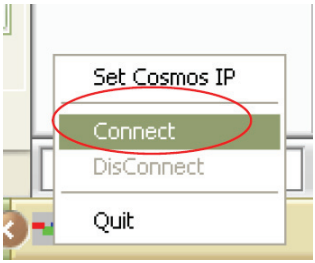
1. Double-click the file **`AviNET.exe`** and an icon will appear in your Windows taskbar.



2. Click the AviNET icon and select **Set Cosmos IP**.

3. Enter the IP address of the PC that is used to connect to the modules.

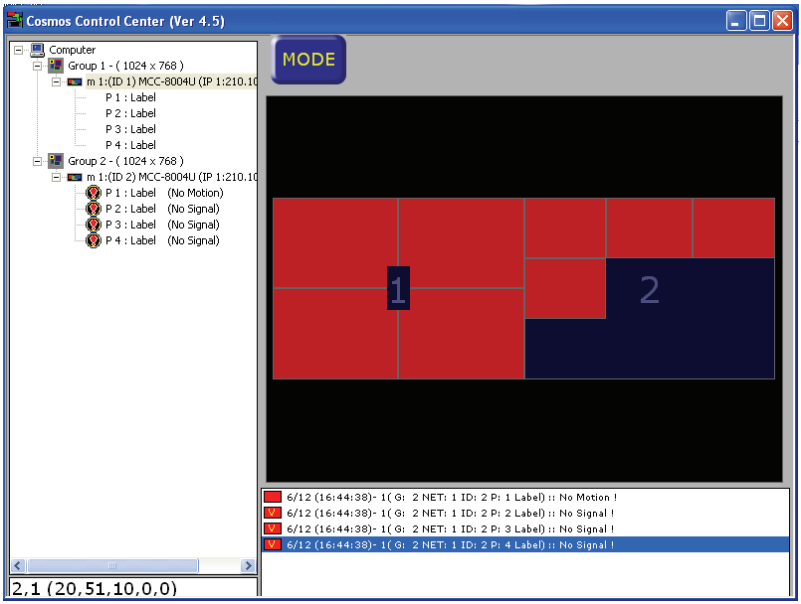
4. To connect, click the AviNET icon and select **Connect**.



A.5 Testing the System

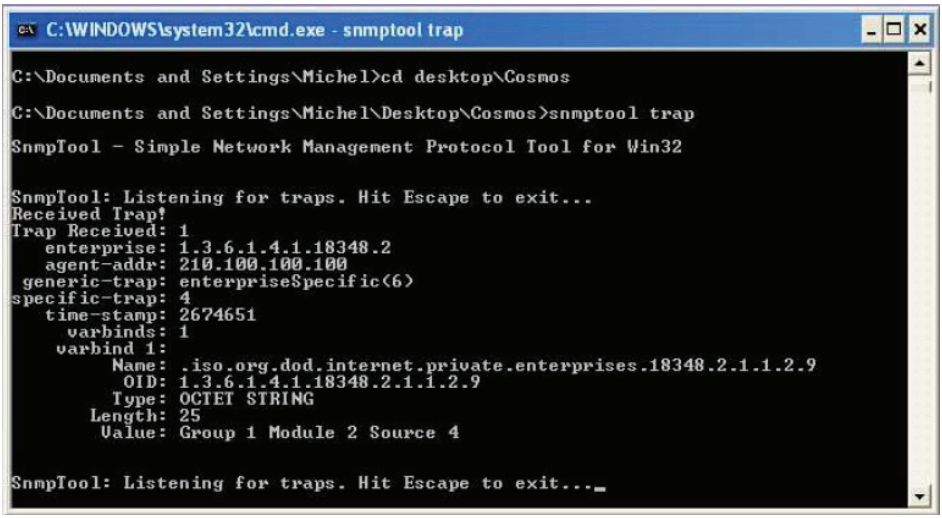
Perform the following steps to test the system:

1. Launch the Cosmos program and ensure that it is properly configured and has module alarms.
2. Click **Mode**.



3. Check if the system status is okay.

4. Create an alarm scenario (e.g., disconnect a video input cable and then reconnect it), then make sure you can see the alarm messages.
5. Make sure that AviNET is launched and "connected."
6. Make sure that SNMP traps are generated any time an alarm occurs. You can use the supplied **`snmptool.exe`** (run it from the same PC that runs AviNET).
7. Run the Windows console (**`cmd`**).
8. Point to the directory with **`snmptool.exe`** application.
9. Type **`snmptool trap`**.
10. Create an alarm scenario (e.g., disconnect a video input cable and then reconnect it), then make sure that traps are issued.



11. Configure the SNMP Manager to communicate and get traps from the Cosmos/AviNET PC.

    SNMP MIBs are supplied.