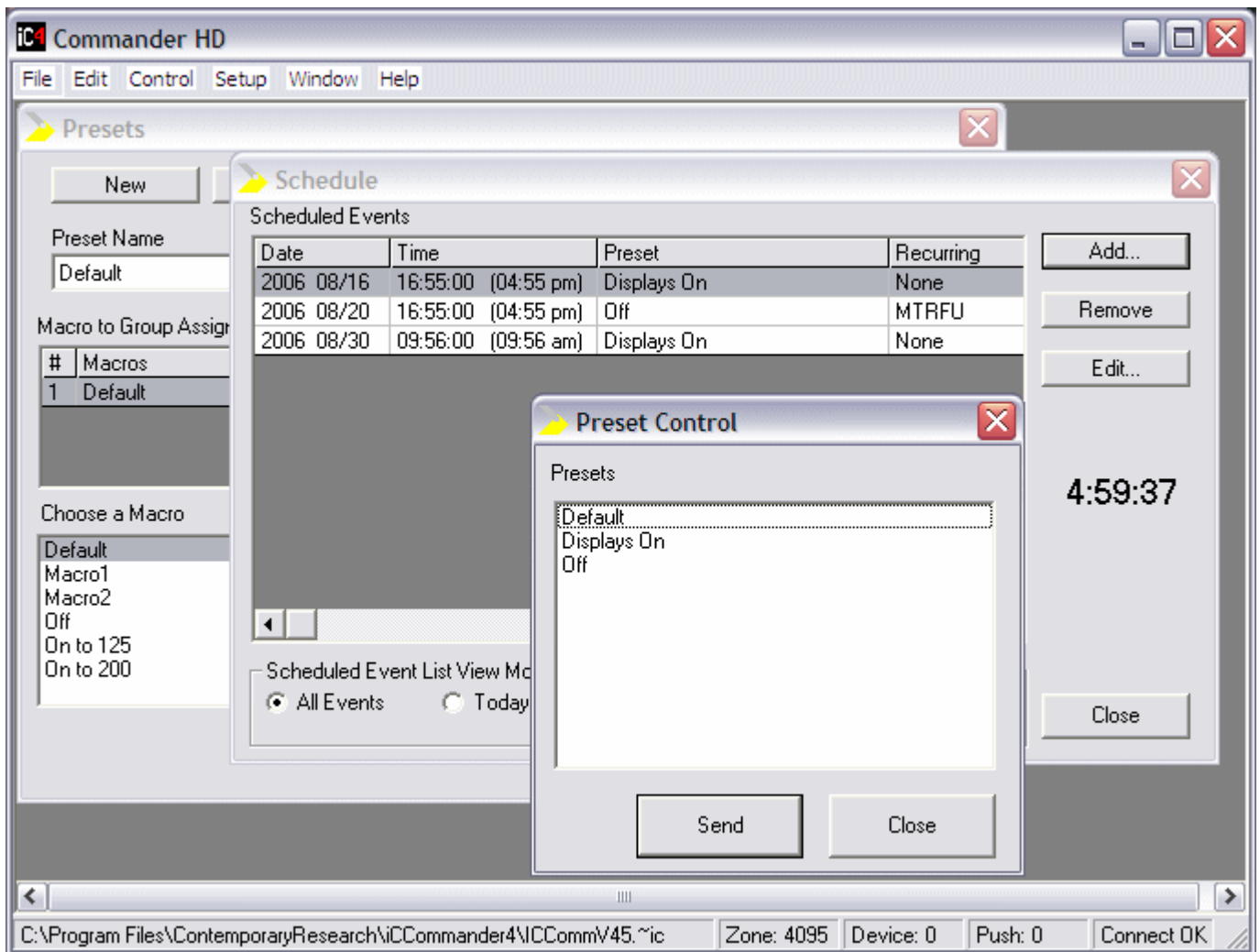


iC Commander HD Overview

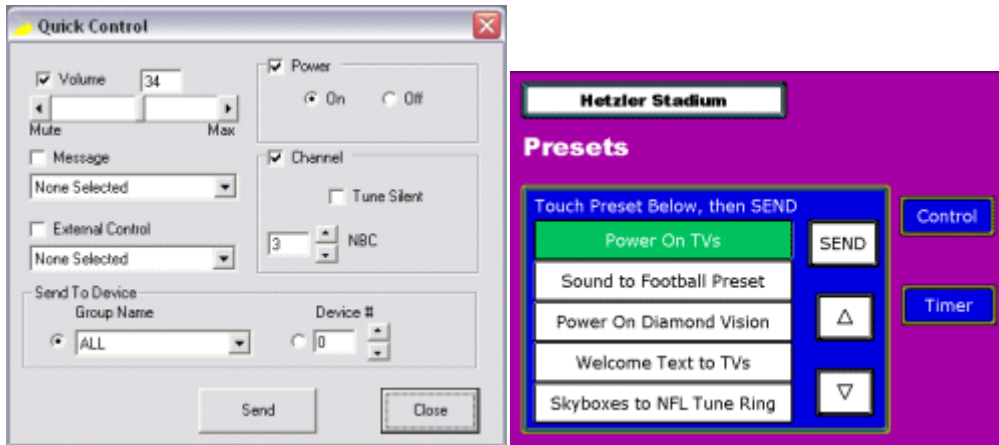


iC Commander HD (v 4.5) is a Windows application that gives you the power to control TVs, video projectors, and monitors distributed throughout an entire building or campus. Communicating via broadband RF or control wiring, iC Commander can control a wide variety of functions to all displays, zones, or individual units. Events can be activated on-demand or scheduled to occur on specific dates and times. Control functions include:

- Access digital cable channels on systems equipped with CableCard technology
- Turn displays on and off, using sensed or intelligent power control
- Switch TVs to specific channels or inputs
- Display on-screen text messages (if character generator option included in system controllers)
- Set volume to specific level
- Open up or restrict access to specific channels at any time
- Launch complex preset events with a simple mouse click
- Automatically rotate through channels in a group of TVs
- Take over control of TVs for special events, then restore sets to normal operation after completion

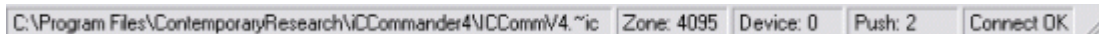
- Integrate operation with control system, including interactive Preset control with touch panel

New! User-Friendly Control Panels



iC Commander 4 introduces simplified control, featuring four point-and-click panels available with user-level access, and easy integration with custom control system touch panels. See [What's New](#) for more information.

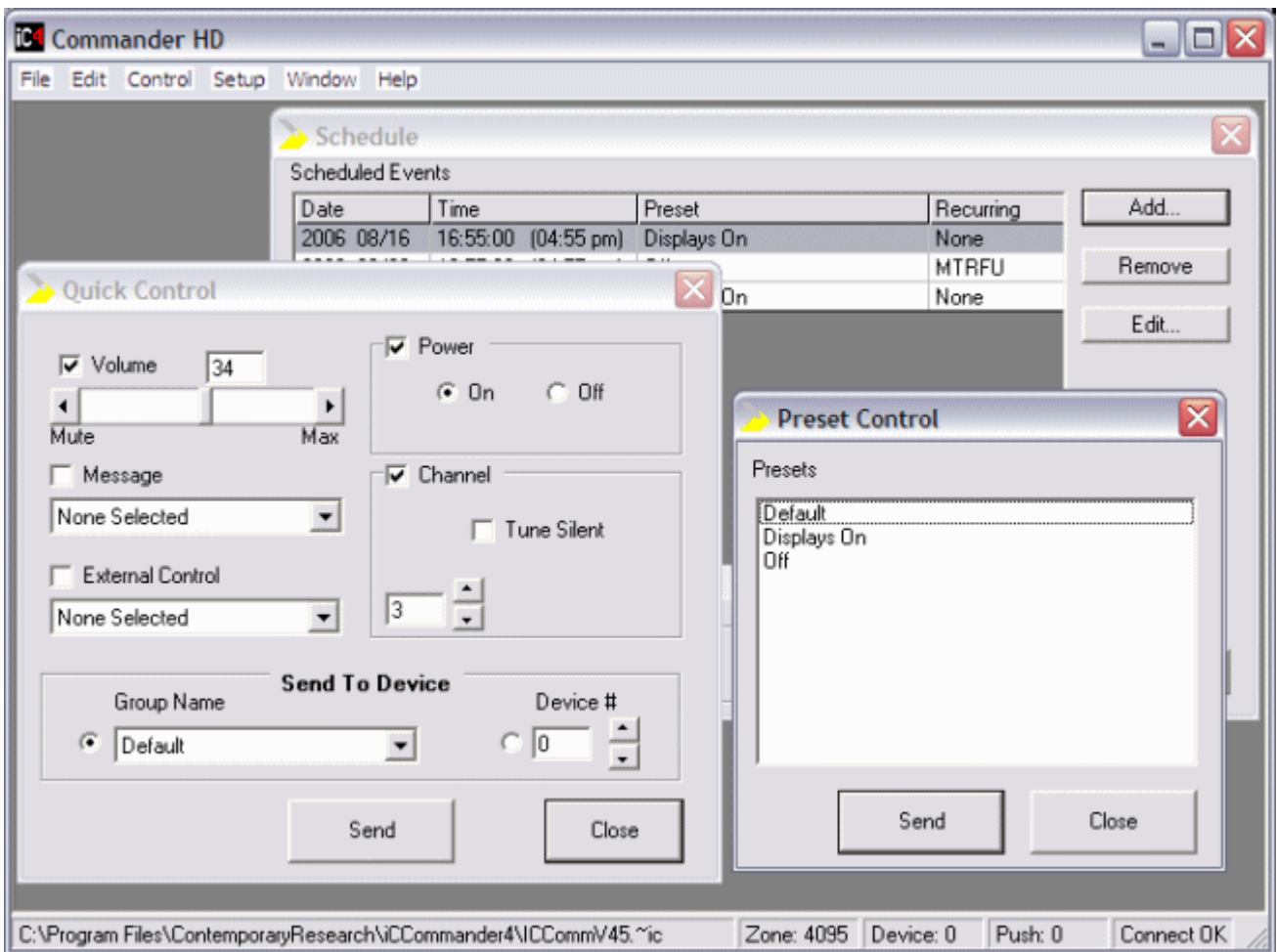
Status Bar



The iC Commander Status Bar displays three types of information

- **System File** - displays the name and location of the current system file
- **Device Response** - shows key commands from the room's IC-RC wireless remote
- **Connection Status** - automatically tests connection to Head End every minute and displays status

What's New for iC Commander HD



HD Tuning

The new IC Commander HD (version 4.5) can tune digital and HD channels in digital cable network supported by displays equipped with CableCard technology. In this type of system, you can define channels 2 to 999. The channels are arranged in order following the CableCard programming from the cable provider.

Mixed Digital and Analog Display Operation

When a channel command below 128 is sent, iC Commander transmits the channel in "TC" format - a standard analog channel tuned by any analog TV. Channels 128 and above are sent in "TH" format - sent to digital displays that can access channels up to 999. In all CableCard applications, the display controller, normally an ICC1-232 will be pre-set to accept both TC and TH tuning commands, and will always tune both as a digital channel.

New Features for iC4-Series Applications

User-Level Control Panels and Access

With iC Commander 4, you can restrict access to four easy-to-use control panels. Experienced users can enjoy simplified control for normal operation, then switch to password-protected editing and system tools to fully manage the system.

- **Quick Control** delivers quick and easy control of basic control functions, including power, channels, volume, and text messaging.

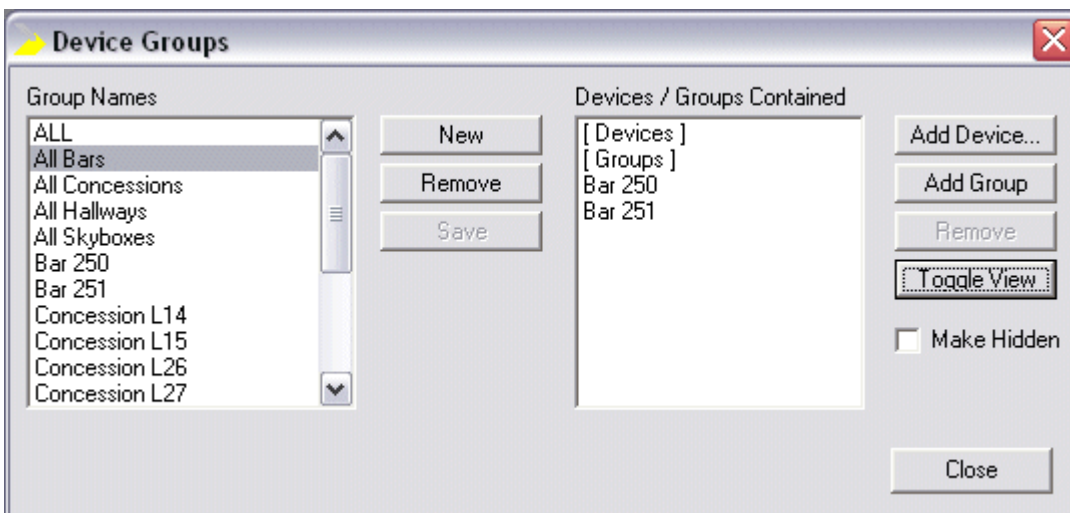
- **Preset Control** offers point-and-click launching of system Presets, which include control commands to pre-determined controllers.
- **Schedule** manages automated launching of Presets by time, date, and recurring cycle.
- **Channel Cycle** rotates a group of TVs through the assigned tune ring, following a timed delay.

Naming Conventions



We've changed many names used within the program, using simpler, clearer terms. We have also reorganized tools into Editing, Control and System menus to streamline operation and allow for user-level access.

Improved Data Sorting



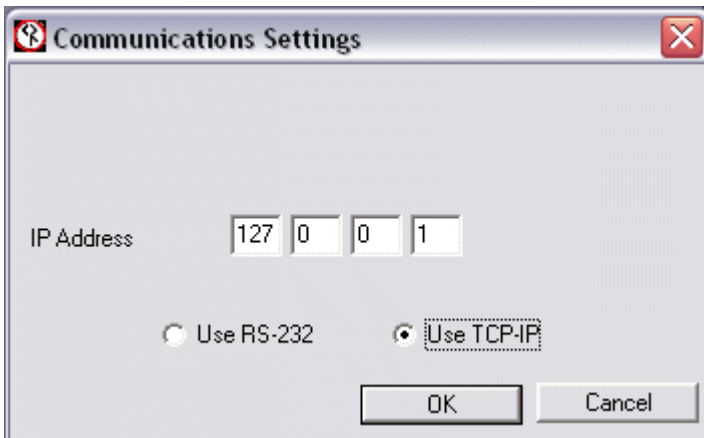
The Device Groups, Preset Control Panel, and Preset Edit pages now display groups, macros and presets in alphabetically sorted order. In addition, the Schedule window displays events sorted by date and time.

2-way Control System Integration



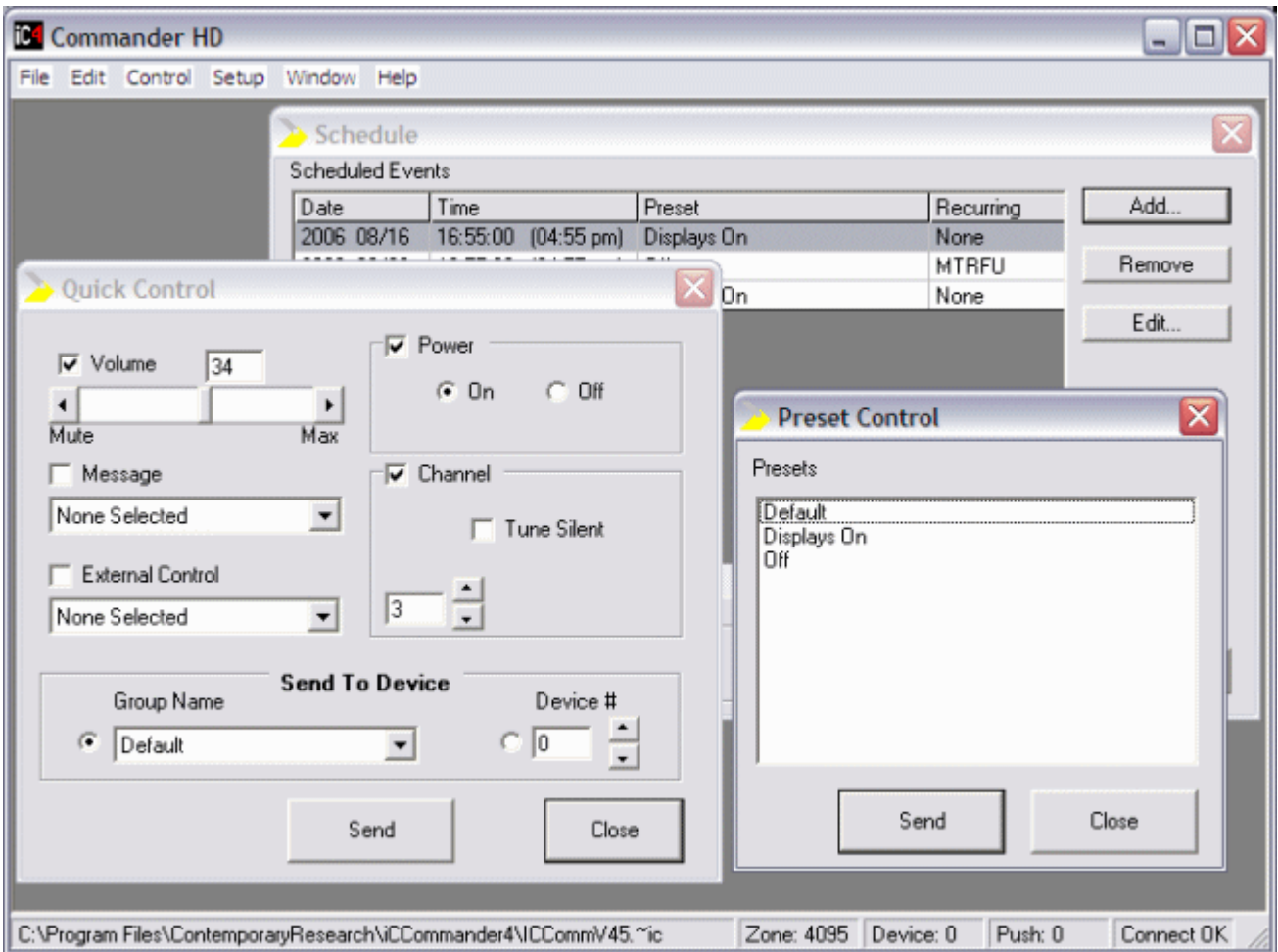
To make iC Commander even more powerful and easier to use, we have provided more tools for integration with custom control systems. In addition to sending external system commands, iC Commander can now "sync" its data with a control system, automatically updating touch panels with preset names, channels and labels, and device group names information. Two-way selection and control of distributed media sources is available as well. See [Control Integration](#) for more information.

Ethernet Connectivity



iC Commander 4 includes the option to use RS-232 or TCP/IP communication. This new feature allows Ethernet integration with the new ICE-HE Ethernet Head End, AMX NetLinx, and Crestron Crestnet 2E control systems. Very often, the best place for the Head End is not where the operator's PC is, now iC Commander can connect to the Head End anywhere reached by the site's network or via the Internet.

Getting Started



iC Commander set to User-Level Control

Before you begin creating iC Commander applications, you should prepare yourself with a few basic ideas of how programs are assembled and what materials you need on hand.

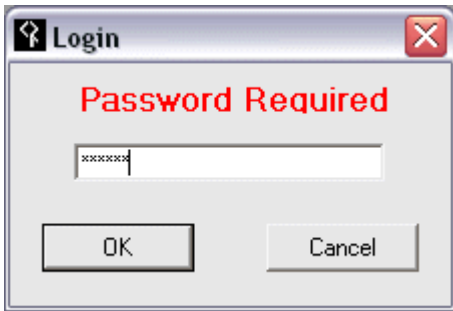
Create system in the proper sequence

When you use the iC Commander Editing Windows, you need to follow the right sequence in defining your system's properties. As you move forward in the editing process, many editing tools will need information created in previous tools. For example, creating Macros combines elements you created in Device Groups, Tune Rings, Channel Labels, Messages, and External Control. See the [Edit Window](#) section to review the editing sequence.

Preparation

Since you'll be creating groups of devices and naming devices, channels and functions, it's a good idea to have all the key information on paper before you begin. Project information should include:

- Create a [System Map](#) of the installed controllers with associated device number, name and group.
- A printout of the zone chart in the [iC-Net Device Zones](#) help page
- A list of names for [TV channels](#) (8 characters each)
- A list of desired [Tune Rings](#) for your system
- A list of [device, channel] commands for use with an [external control system](#)



Login

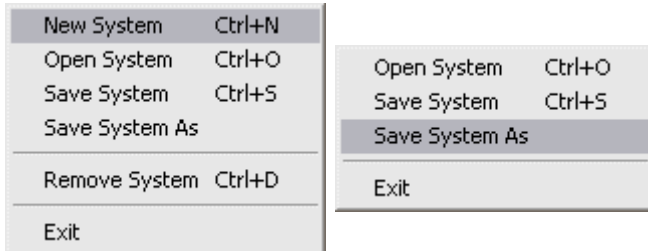
Now you're ready to begin creating your iC Commander system. But first, you'll need a password, entered whenever you launch iC Commander software. Dealer-level passwords are available to system integrators from Contemporary Research support. User-level passwords are created and provided by the dealer.

- **User** login simplifies access to basic Control panels only, along with File save, close, and exit, help, and general Windows tools. Users cannot change any attributes of the system.
- **Administrator**-level provides full editing and control access.

Menu Structure

iC Commander is a flexible workspace that displays windows used for system setup, presets, scheduling and preset control.

File Menu



Admin Level Menu

User Level Menu

Depending on your access level, you can create a new system file, open an existing one, save the present one, save the current one as a new file, remove a system file, or exit the iC Commander program. Note that when you select **New System**, iC Commander will create an empty data file with default data entries only. If you want to create a new system file that's similar to an existing one, open the desired file and use **Save System As** to create a copy.

Edit Menu accesses tools that create the building blocks of iC Commander system control.



- **Device Groups** creates easy-to-use names for TV controllers, then groups them for simple one-click access
- **Tune Rings** creates lists of channels that can be assigned to TVs, users can only access listed channels
- **Channel Labels** assigns on-screen text names for TV channels
- **Messages** creates on-screen text messages
- **External Control** creates commands to external control system.
- **Macros** names programmed groups of control functions.
- **Presets** links Macros with Device Groups.

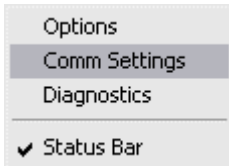
Control Menu selects user tools for iC system control, available for User and Administrator access.



- **Quick Control** sends TV control commands to Groups or individual TVs

- **Preset Control** launches preset events
- **Channel Cycle** cycles TVs through a defined group of channels
- **Schedule** launches presets by date and time
- **Schedule Active** checkmark enables schedule operation, disables when unchecked

Setup Menu offers tools that set up overall system operation, available only with Administrator access.



- **Options** sets general operating parameters, login password, and error-checking features
- **Comm Settings** selects COM port and baud rate
- **Diagnostics** manage lists of present and missing devices on the network and check device status
- **Status Bar** checkmark displays the status bar at the bottom of the iC Commander window

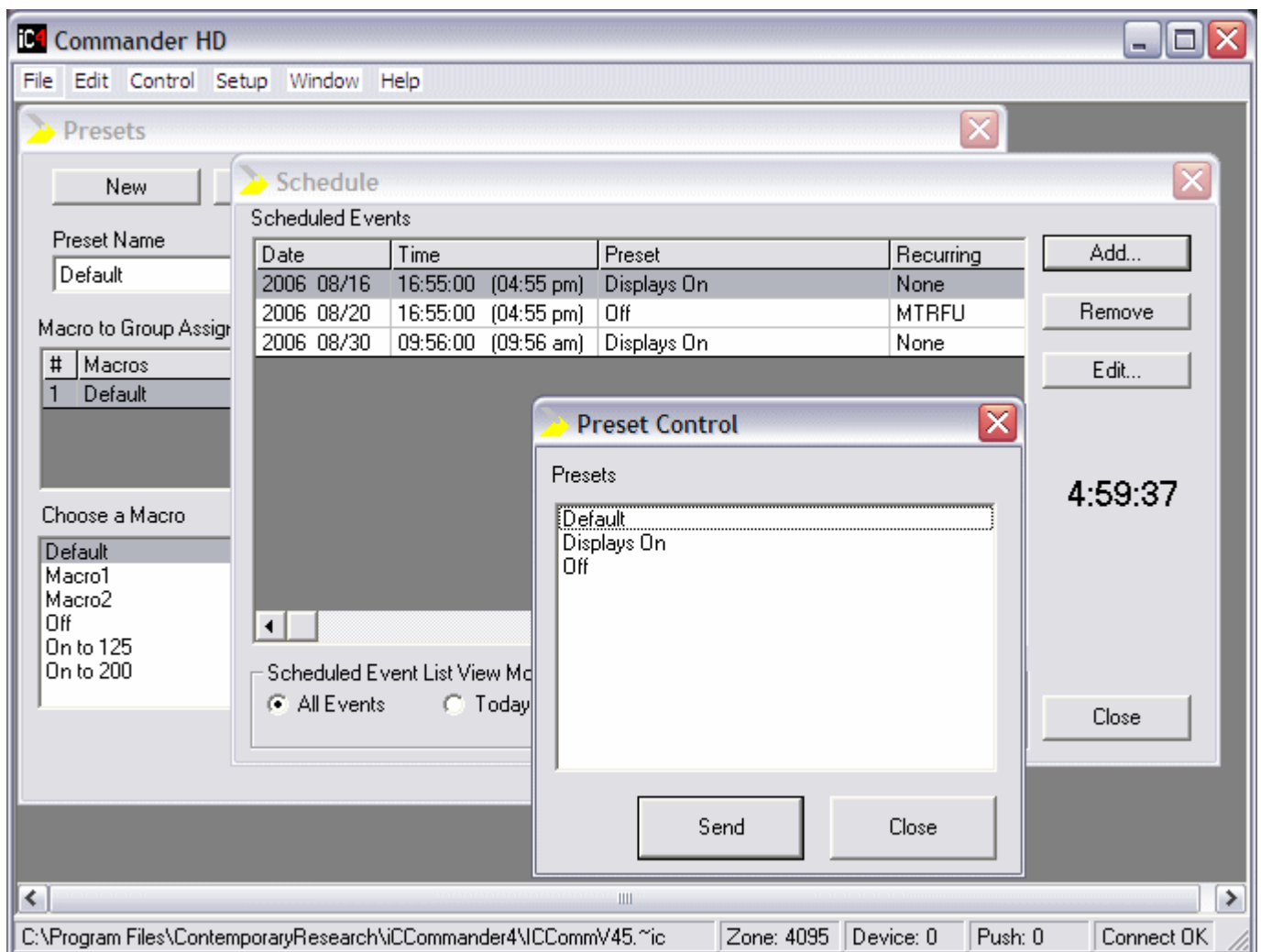
Windows and Help Menus

The Windows menu allows the user to cascade or select active windows, and the Help menu accesses the help file and About information.

iC Tip - Knowing Your System

When first launched, iC Commander will open a default system file you can use for training. You can create one or more system files around your own needs and system configuration. Every time iC Commander is launched, it will open the last file you saved. The current file name will be displayed on the Status bar at the bottom of the window.

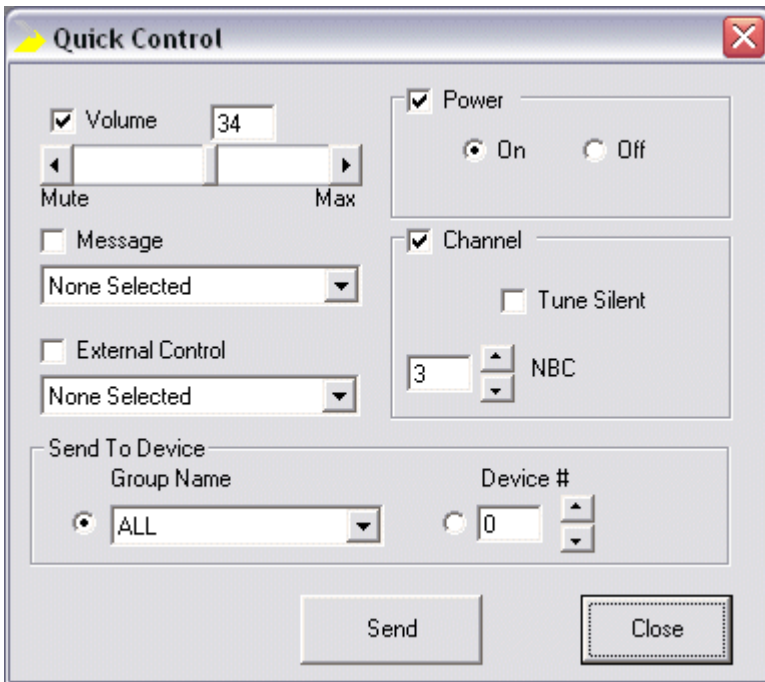
Control Panels



Control Panels are used to control and manage the devices in your system:

- **[Preset Control](#)** launches preset events
- **[Quick Control](#)** sends selected control commands to Device Groups or an individual device number
- **[Channel Cycle](#)** cycles TVs through a defined group of channels
- **[Schedule](#)** creates and manages the list of scheduled events
- **[Schedule Active](#)** enables and disables an automated schedule that launches events by date, time and repeating cycles

Quick Control



With the **Quick Control** panel, it's easy to take control of your iC-Net system. Just select one or more control functions, then Send the commands to a Device Group or individual device number.

Volume

Forces TV to preset volume level.

Message

Sends a saved text message for display on a TV.

External Device Event

Sends a saved command to an external control system.

Power

When boxes are clicked, turns TV power on or off.

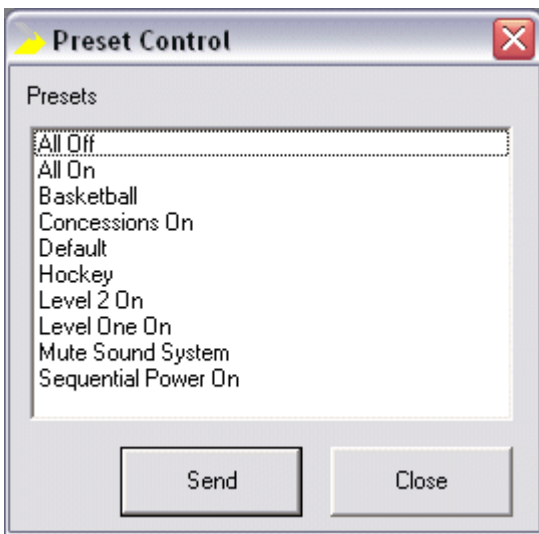
Channel

Forces TV to specified channel, even if it is not included in a TV's current Tuning Ring. **Silent Tuning** turns off on-screen channel information.

Send to Device

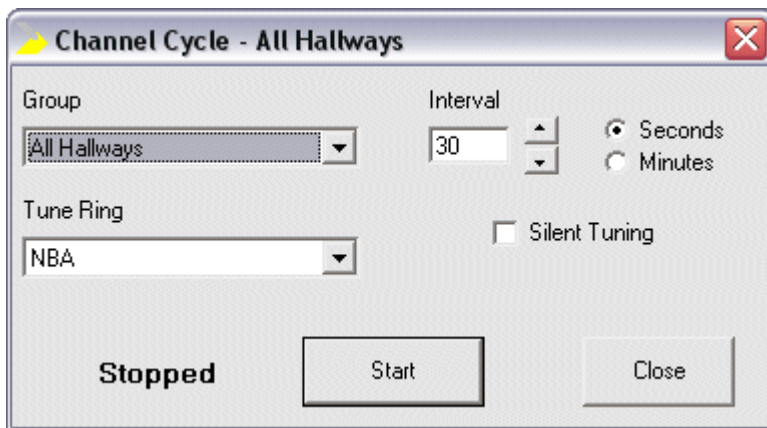
Send the selected command(s) to a Device Group or individual device.

Preset Control



To launch a Preset, just select a **Preset** and click **Send**. As the Preset includes a list of both control functions and intended devices, everything else is automatic.

Channel Cycle



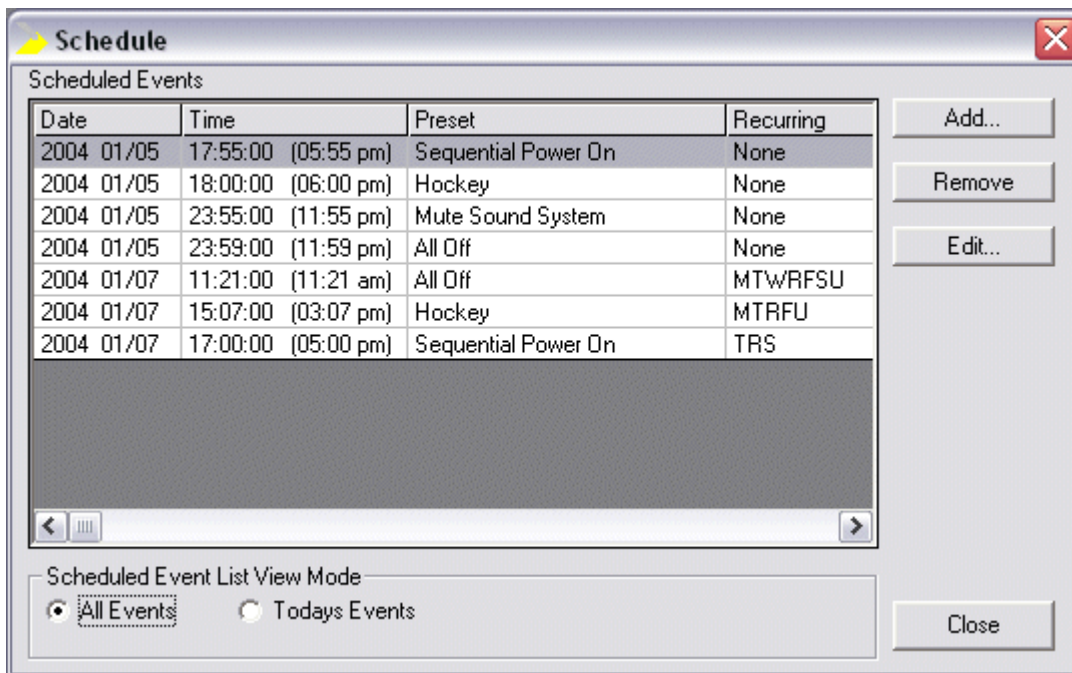
This tool is popular with sports bars and other venues that want to emulate a rapidly-changing video wall effect using the RF tuners in TVs. By clicking on the **Channel Cycle** menu, you can open up multiple Channel Rotators, running different tuning rings and intervals for different groups of televisions.

1. Select **Device Group**.
2. Select **Tune Ring**.
3. Specify the desired channel-tuning **interval**.
4. Select **Silent Tuning** if you don't want channel numbers and labels to be displayed on TV.
5. Start the Rotator.

iC Tip - Multiple Channel Cycle Panels

You can open up multiple Channel Cycle panels, which can all operate at the same time. As the Channel Cycle panels are not database-driven objects, they cannot be scheduled or launched like presets. If you close iC Commander, you will need to re-create your Channel Cycles.

Schedule Control Panel



The **Schedule** control panel allows the user to program a timed calendar of Preset events for the system. The Presets will automatically launch on the specified date and time, repeating on a recurring monthly, weekly, or daily cycle. The Schedule window automatically sorts by date and time, allowing the user to monitor the day's events in real time.

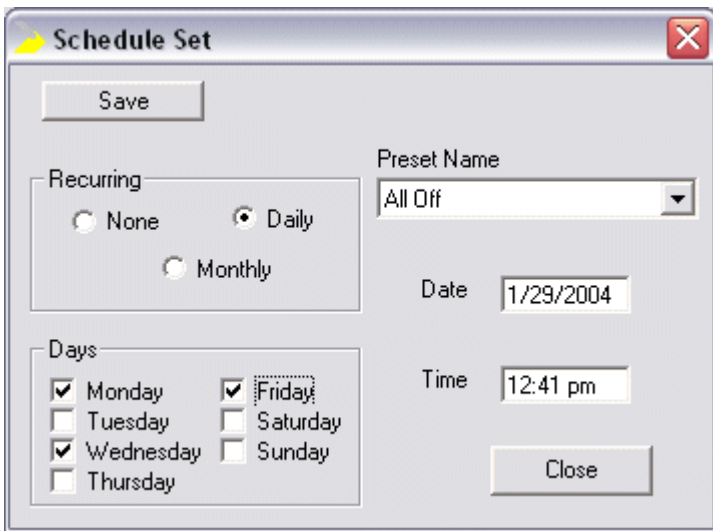
View Events

Click on **All Events** or **Today's Events** to filter list of events. Normally, the events will be listed by name, but you can move the columns to suit your need. The list will be sorted by whatever data is in the first column. You can sort by Preset name by dragging the Preset column to the left. When the database is changed, or when the Schedule window is open, the display will revert to the default date/time sort. In addition, you can resize the columns by moving the top dividing lines between the columns.

Recurring events will be displayed using seven letters:

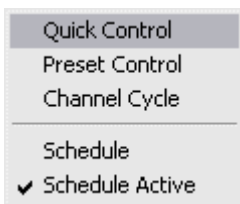
- M = Monday
- T = Tuesday
- W = Wednesday
- R = Thursday
- F = Friday
- S = Saturday
- U = Sunday

Add or Edit Scheduled Event



1. Click on **Add** to add a scheduled event, **Edit** to change a current event.
2. Select a **Preset** from the database.
3. Enter a desired **date** and **time**. Date can be expressed simply, the entry 1/5/04 will be changed to 01/05/2004. Time must include am or pm, program will add space if needed and reduce upper case to lower case. If not included, time will be set to AM. You can also enter time in international/military format.
4. Click on one of the four options for a recurring event.
 - a. None** - Preset launches once, on the assigned date and time
 - b. Daily** - Preset launches on the assigned days, repeating every week, starting from the assigned date
 - c. Monthly** - Preset launches on the same date, every month (see iC Tip below)
5. Click **Save** to save.

Schedule Active



Click on the Schedule Active line in the Control Menu to enable or disable scheduling operation. Use wisely, because when the line is not checked, the scheduled events will not occur.

iC Tips

Monthly Events

Unlike Daily, Monthly events launch on the same **date**, not day. If you schedule a recurring Monthly event for the 5th, it will occur on the 5th of every month. This gets a little tricky when you create a Monthly event for a date between 29 and 31, because some months do not have 29, 30, or 31 days. iC Commander handles this by recalculating a date in that range to the last day of the month. So a Monthly event set to 31 in 2004 will actually trigger on January 31, February 29, April 31, March 30 - and so on.

Schedule Active

While the Schedule calendar begins operating as soon as you create events, you can temporarily disable events from launching by unchecking the **Schedule Active** listing in

the Control Menu. Also very helpful when you want to skip a series of timed events. Timed operation will resume at the point you enable operation, it will not execute the items that were skipped.

Handling Skipped Events

There are three ways a scheduled event can miss its launch time:

- The PC was off or inoperative at the scheduled time.
- iC Commander was closed at the time.
- The Schedule Active function was turned off.
- The user was editing the system or schedule at the time. When you Add or Edit an event, Schedule's timer is paused until you close the Add or Edit tool. Events timed to occur while the timer is paused might be missed when the timer re-syncs with the PC clock.

iC Commander will not automatically execute missed events, for obvious reasons. The best way to handle missed events is to use the Preset Control panel to launch events manually.

Control System Integration



Sample AMX touch panel with channel indicators

Using iC Commander 4, consultants and integrators can create bi-directional media network applications with wide variety of features:



Local Control

All 2-way iC-Net controllers can control the local display with a low-cost (less than \$50 retail) IC-RC wireless remote. Control for power, volume, channel tuning, input selection, and

closed-captioning are handled locally by the intelligent controller, minimizing delays or processing overhead from the control system.

2-Way Media Control

All 2-way iC-Net controllers also include the ability to select and control distributed media. When a user presses the IC-RC **Menu** button, then the 1 key - the iC-Net controller asks the user to enter the channel of the desired media source. The controller then sends a link command to the control system, which transfers control of the source to the user.

Synced System Control

iC Commander can sync its application data with a custom control system, allowing the system to integrate touch panel control of presets, channels and controllers. Whenever key system information is updated, iC Commander will automatically re-sync the new data with the control system. See [Options](#).

Preset System Control

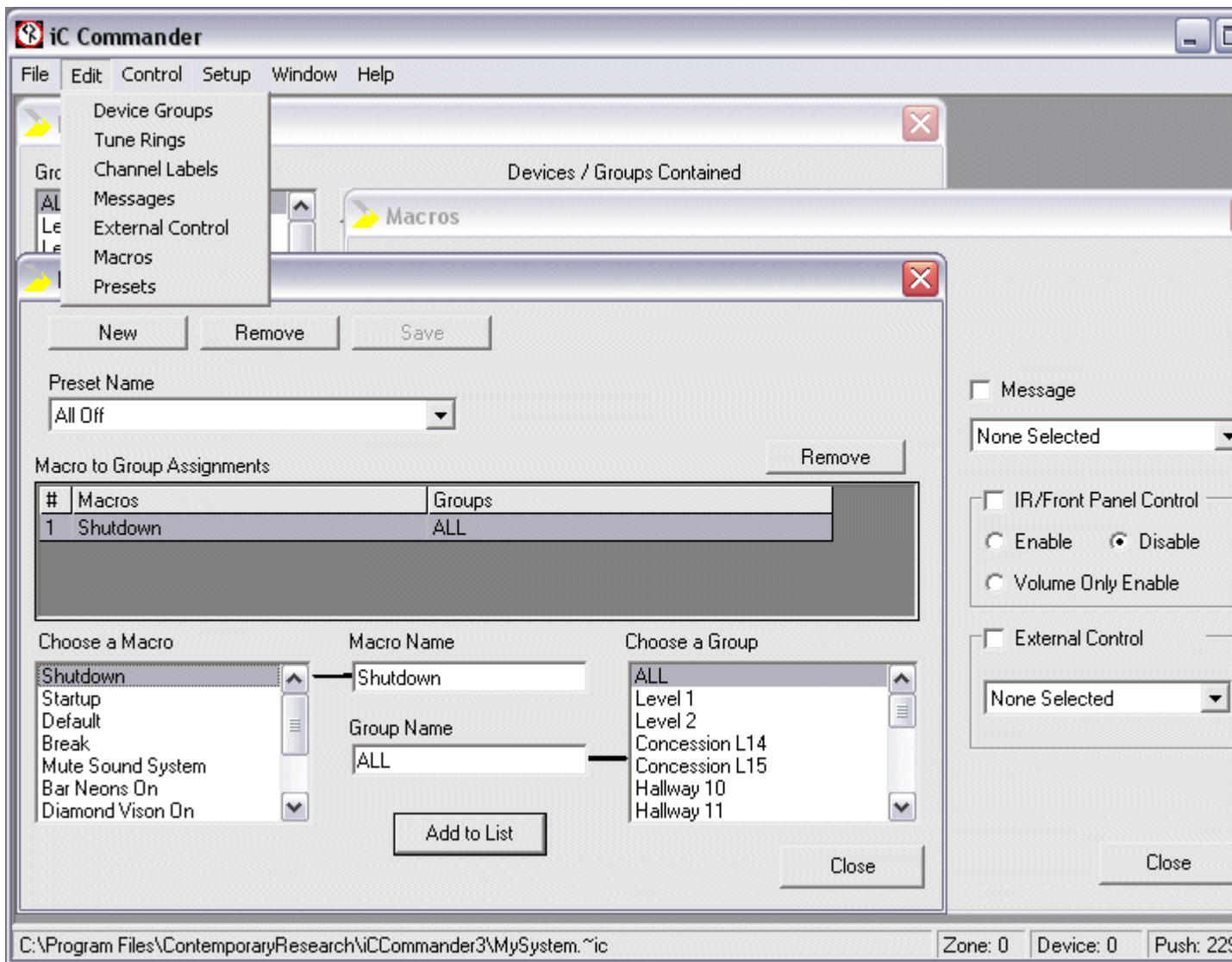
In addition, the system developer can create iC Commander **Presets** that send commands to the control system. For example, an iC Commander schedule can launch control system functions such as sending network sound system presets and powering up Diamond Vision screens by date, time, and recurring cycle.

Ready-Made System Code

CR Tech Support has made the integration process even easier by creating sample AMX Access code and touch panel designs. In addition, CR is working with AMX and Crestron to create standard, drop-in programming modules for integrated iC Commander applications.

For more information and sample control and touch panel files, contact CR [Tech Support](#).

Editing Tools



The iC Commander Edit Windows are used to define the devices, names, presets and settings of the elements in your system. In general, each Editor will allow you to define a group of devices or actions, assign an easy-to-remember name to element you've created, then save it to a database for use within iC Commander.

Editing Sequence

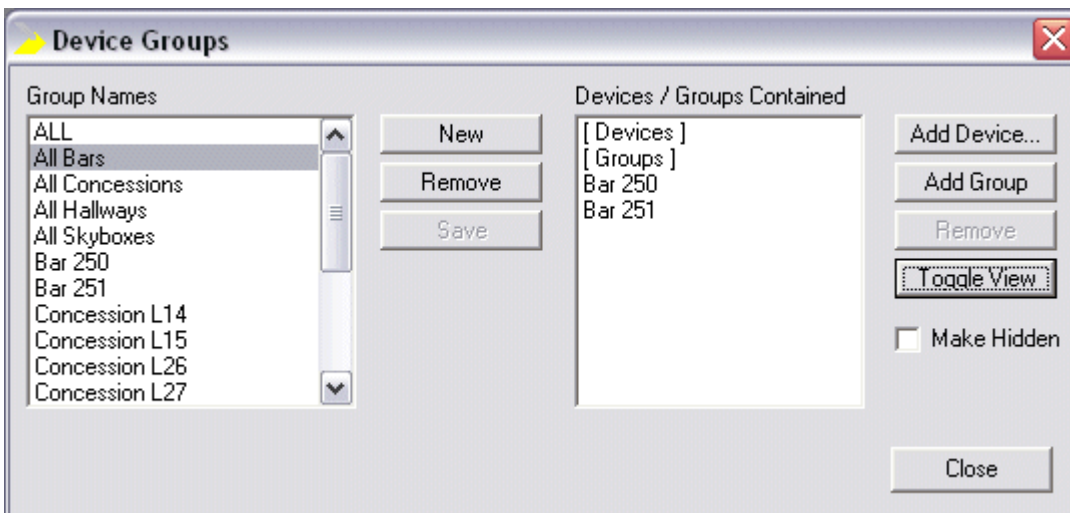
Use the sequence of Editing Windows shown below to create your system. The groups, names, and data you set up in steps 1 - 5 will be needed for the last two steps.

1. **Device Groups** names and creates groups of devices.
2. **Tune Rings** creates groups of channels that can be assigned to TVs.
3. **Channel Labels** assigns names for TV channels.
4. **Messages** creates on-screen text messages displayed by TV character generators.
5. **External Control** creates commands to external control system.
6. **Macros** names programmed groups of functions, including TV commands and named elements built in steps 2-5.

7. **Presets** links macros to device groups, launched from the Preset Control panel or Schedule panel.

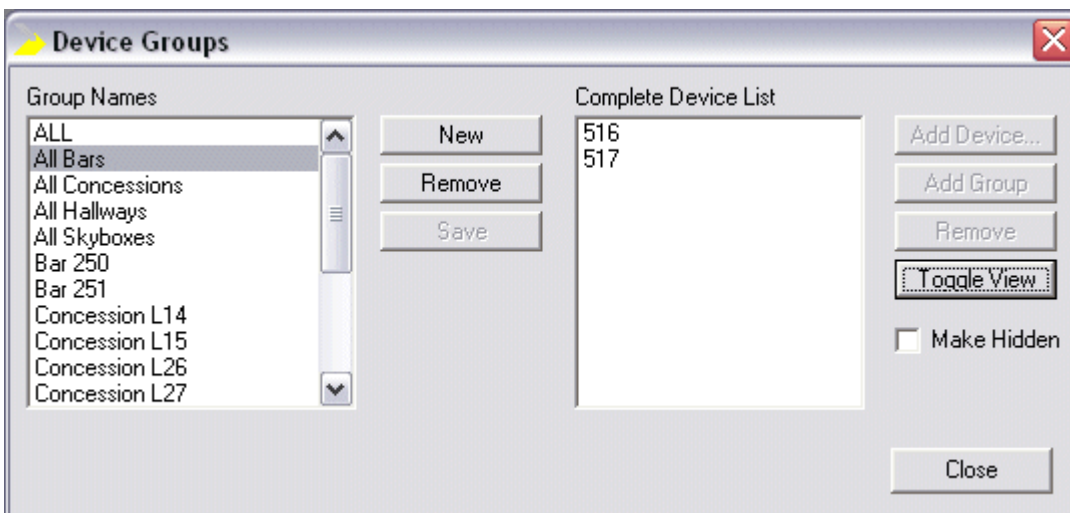
To view an Edit Window, click on its name in the iC Commander's Edit menu.

Device Groups



Device Group - Name View

A **device** is a controller that connects to the iC-Net network, typically a tuner, TV controller or a Smart Card in a TV. Every device has a unique **device number**, its specific numeric address on the network. Numbers are fine for computers but not for people, so iC Commands allows you to assign names to an individual controller or a group of devices. The Toggle View button switches views between group names and device numbers.



Device Group - Number View

The left box of the Editor lists the names of existing groups of devices, called **Device Group**. When you click on a group name, you'll see the members of the group in the right-hand box. Notice that you can combine individual devices, listed under the [Devices] heading, with other groups.

To create a new Device Group:

1. Click on the **New** button and assign a unique name for a single device or group of devices
2. Click on the **Add Device** button to add devices by number you can use commas between numbers, you can't enter ranges (like 456-512)
3. Click on the **Add Group** button to add groups of devices you can add multiple groups by holding down **Ctrl** while you click on names, or **Shift** and highlighting adjacent names

4. If you added an incorrect device or group, just highlight and click **Remove**

Follow steps 2-4 to modify the devices and groups included in existing device groups. If you want to temporarily hide a group from the other windows, just highlight the group and click the **Make Hidden** box.

When you're creating a new system, one approach would be to create a list of single-device Device Groups, using a group name for each device. In the same way, one location might have two TVs, so you add both device numbers planned for that room. Then you can create groups of devices, such as *All Skyboxes* or *West Wing Hallways*, by clicking on **Add Group** to add the devices by name instead of number.

For others, it is easier to start with multi-device Device Groups — creating a group name and entering a group of device numbers. Any approach or combination can be used to create an iC Commander system.

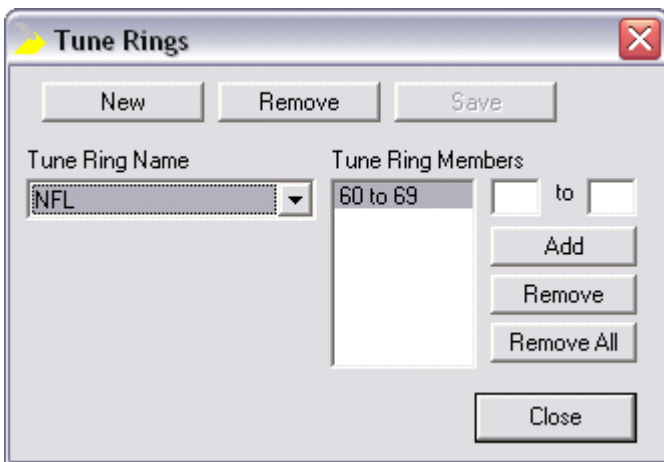
Important Notes:

- The **Save** function within this tool saves the information to memory. You must use **File/Save** to save the changes to the permanent database.
- When you create groups or individual devices, note that iC Commander automatically adds device **4095** (all devices) to a new group. Manually delete this and add the desired device numbers. Every new group must start with some value, so the software adds this value automatically.

iC Tip - Groups and iC-Net Zones

If a Group contains individual devices, the system will send a command to each specific device in sequence, which can take a long time for a large group of devices. The better approach would be to take advantage of iC-Net Zones, special iC-Net **reserved device numbers** that allow you to communicate with many devices using a single number. If your system has been set up follow our **iC-Net zone structure**, you only need to define one device number to control the entire zone (up to 255 devices), or all TVs (device number 4095). See **[iC-Net Device Zones](#)** in the Reference section.

Editing Tune Rings



A **Tune Ring** is a list of channels you can access on a TV by pressing Channel Up or Channel Down. When you send a set of Tune Ring channels to TV, a user can only access the channels in that ring. You could limit access by using a Ring with only one or two channels. Then later on, opening up access to any channel by sending the TV a complete Tune Ring, say all channels between 2 and 99.

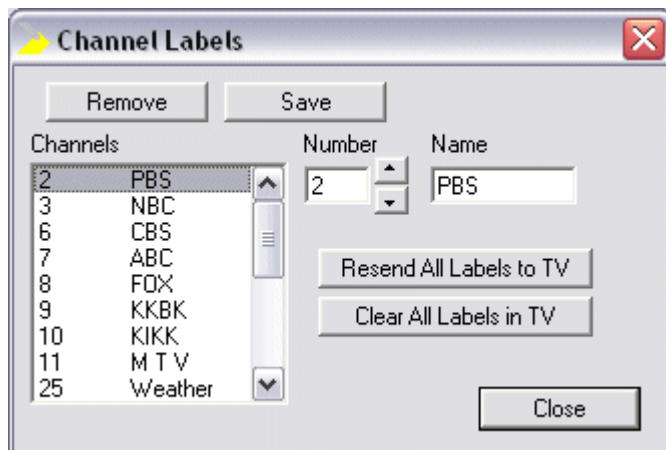
Tune Rings are presently only available for analog displays and only accepts channels up to 127.

To create a New Tune Ring:

1. Click the **New** button on the Tune Ring Editor
2. Assign a unique name
3. To add a single channel, enter a number in the left-hand box just above **Add**, then click the **Add** button to add it to the list on list box
4. To add a group of adjacent channels, fill in both boxes, then click **Add**.
5. To remove a channel or group of channels, highlight the channels and click **Remove**
6. Clicking on **Remove All** deletes all the channels from the group.

To edit an existing Tune Ring, just select a named Tune Ring, and change the listed channels.

Editing Channel Labels



All TVs that accept Contemporary Research Smart TV cards have a built-in **character generator** to display on-screen text. Our outboard controllers for other monitors and projectors can also include a character generator as an option.

One of the most popular uses of this feature is to briefly display an on-screen text labels (up to eight upper-case characters) when a channel is selected.

The format for adding, deleting and editing information is a little different from other screens, but very intuitive and fast once you get rolling.

Edit Existing Channel Label

1. Highlight the channel you want to update.
2. To change the channel number, enter a new channel in the **Number** box and press **Update** (iC Commander will immediately teach the change to all TVs).
3. To change the channel text, enter new text in the **Name** box and press **Update** (iC Commander will immediately teach the change to all TVs).

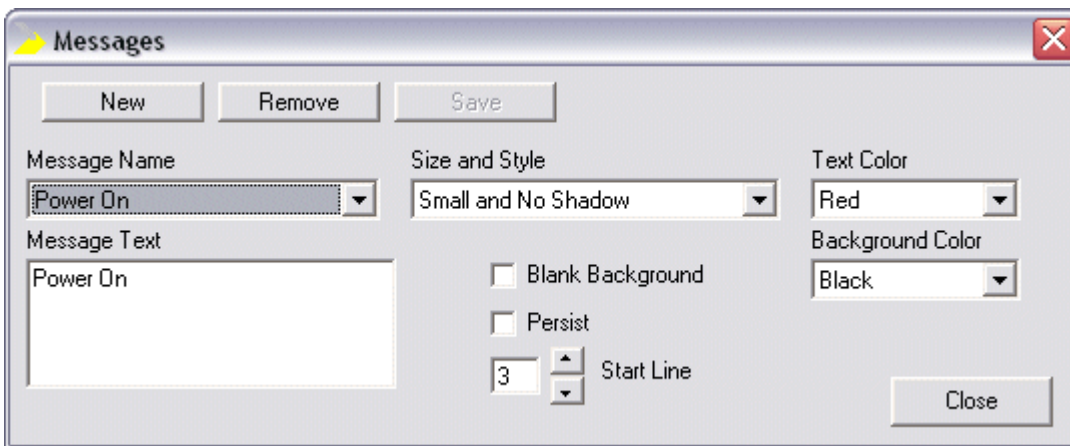
Add New Channel Label

1. Enter the channel in the **Number** box.
2. Enter the channel text in the **Text** box.
3. Press the **Update** button to add (iC Commander will immediately teach the change to all TVs).

Change All TV Labels

1. Press **Resend All Labels in TV** to resend new list to all TVs especially useful if you've added new TVs to the system (**Update** does this as well when you make any changes)
2. Press **Clear All Labels in TV** to, well, clear all the labels in the TVs.

Message Editor



The same character generator feature programmed by the Channel Label tool can be used to send on-screen text messages to one or more TVs. On-screen messages can have the following properties:

- Up to four lines of text in one of eight colors
- Small or double-size text, with and without drop shadow
- Up to eight background colors or superimposed over video

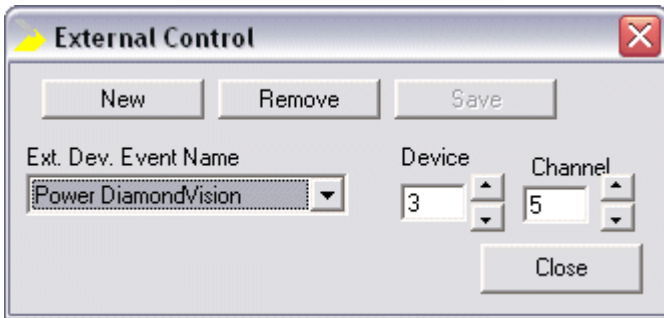
Creating and editing messages is a simple process:

1. Click **New** to create a new message
2. Click on an existing message to change text or properties
3. Enter up to four lines of text
4. Select text color
5. Select text size and shadowing
6. Select background color
7. Click on **Blank Background** to superimpose text over video
8. Click on **Persist** to keep message on-screen until another message is sent (see below)
9. Select **Starting Line** for text (1 - 10)
10. **Save** (closing also prompts to Save)

iC Tip - Persist

Normally, when any **text message** is sent to a TV, the text will appear for 5 seconds, and then disappear. When you send a message with **Persist** turned on, the text will stay on the screen until a new message is sent.

Adding External Control Commands



While iC Commander delivers a wide range of control over a TV network, integrating a **control system** adds even more versatility. An external control system can receive **External Control** commands from iC Commander, triggering a variety of events programmed inside the control system.

For example, when the *Mute Sound System* event shown above is triggered, iC Commander sends a command to a control system that includes the Device/Channel data (3,1). The control system is programmed to understand that Device 3 means to control the sound system, and Channel 1 means Mute On .

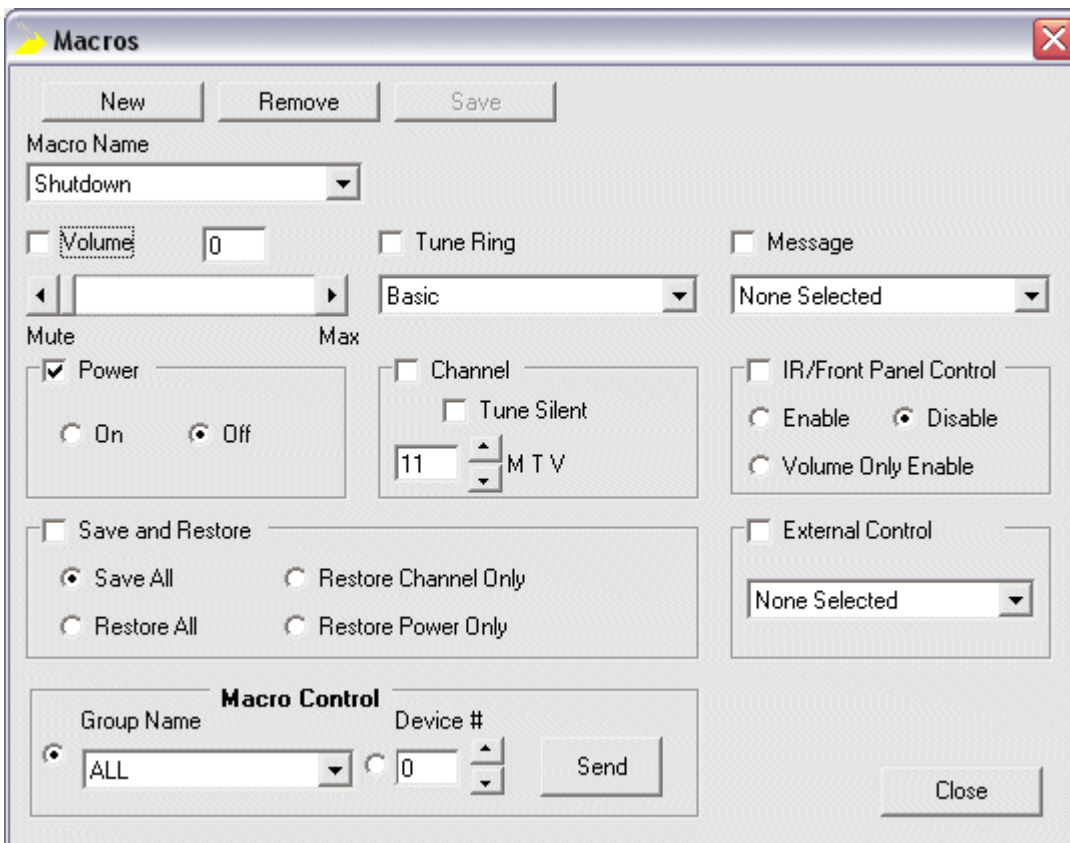
Event creation and editing follows a similar procedure:

1. To create a new event, click the New button
2. To edit an event, select the title in the **Name** box
3. Select codes with the up/down buttons in **Device** and **Channel** boxes, or type the number in the box (codes limited from 0 to 255)
4. When you make any changes, the **Save** button will activate (its normally grayed out if the data is unchanged)
5. Press **Save** to save the event, clicking on Close will prompt you to save the event as well

iC Tip - Create Multiple Device Groups to match External Control Events.

External Control Events are launched from Presets, just like normal iC-Net commands- and each External Control event must be linked to a Device Group in the Preset. If you create a Preset for a single control event, you can link it to the Default device group, which has no assigned device. If you plan on including multiple control commands in the same preset, you need to create a matching Group for each (with no assigned device number). For example, create a blank DiamondVision Group for your DiamondVision External Control commands, a Sound System Group for sound system events. Why? A Group can't be linked to multiple events or functions in the same Preset. By creating multiple "empty" Groups, you can combine multiple external events in the same preset.

Creating Macros



Macros can group one or more control functions together into a named Macro that can be linked with a **Device Group** to an iC Commander **Preset**.

A Macro command can include one or all selected control functions. By combining many control functions into one command, the iC Command system can respond immediately to a series of functions. For example, an *Emergency Page* collection could:

- Set volume to a preset level
- Turn all TVs on
- Force all TVs to a specified channel
- Disable local control
- Display an on-screen text message
- Send a command to a control system to turn on lighting, switch an A/V router to a video camera and audio, or start a DVD player to play a pre-recorded message.
- Restore all TVs to normal operation by sending a *Restore* function collection

As with other iC Commander editing tools, use **New** to create a new event, select an event in the Name box to change an existing collection. Click on **Save** to save settings and changes, **Close** will prompt you to save if you forget.

Power

When boxes are clicked, turns TV power on or off.

Channel

Forces TV to specified channel, even if it is not included in a TV's current Tuning Ring. **Silent Tuning** turns off on-screen channel information.

IR/Front Panel Controls

Enables or disables all local control. **Volume Only** disables all local control but volume.

Volume

Forces TV to preset volume level.

Tune Ring

Installs the selected Tuning Ring to a TV.

Message

Sends a saved text message for display on a TV.

Save and Restore

- **Save** commands the TV controller to save all current settings before executing any other functions
- **Restore All** restores TV to the saved power and channel settings
- **Restore Channel Only** resets the TV to the saved channel only
- **Restore Power Only** returns the TV to the saved power state

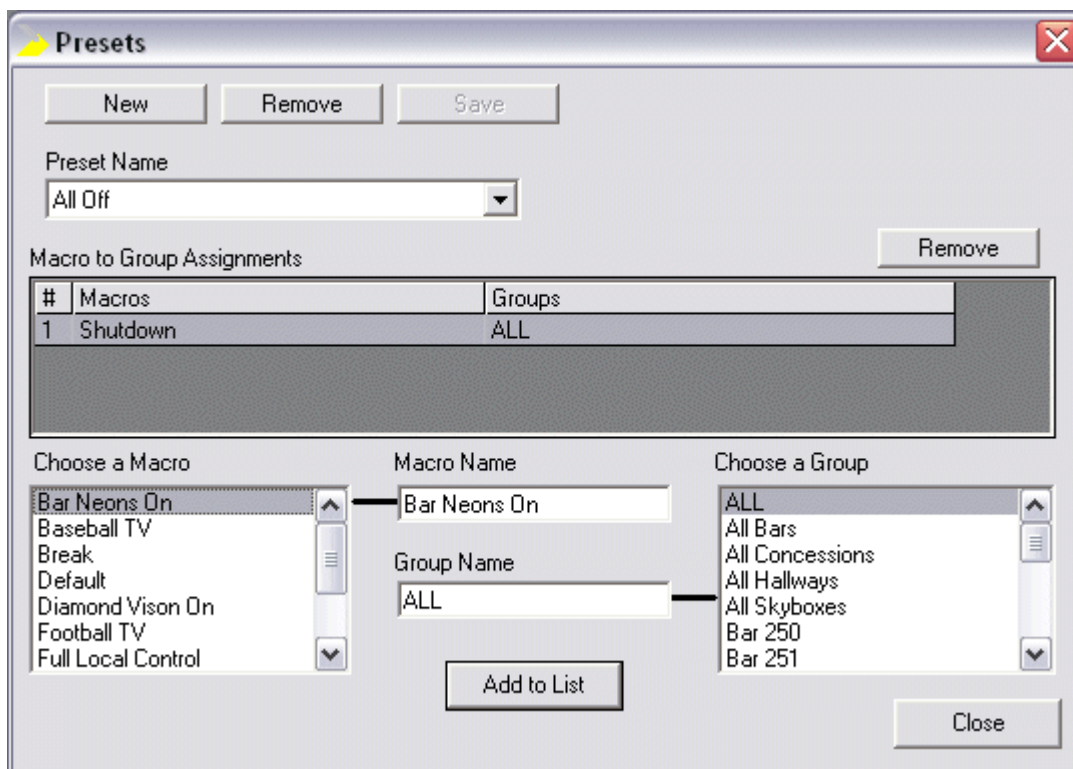
External Control

Sends a saved command to an external control system.

Send to Device

Test macro operation, or send a special command (current macro plus any control commands you've selected) to a Device Group or individual device.

Preset Editor



At this point, you've been creating all the elements that make up a **Device Group** and a **Macro**. Now it's time to link the two elements together to form a **Preset**. Presets are the key component for iC Commander user control panels. Presets can be launched manually with the **Preset Control** panel, or started by day and time with the **Schedule** panel.

Each Preset launches a list of events, each event consisting of a single Device Group linked to a single Macro. In the example above, the *Shutdown* preset sends the shutdown Macro to all TVs.

Creating a Preset

1. If you have an existing preset that's similar to the one you'll create, select that preset first.
2. Click the **New** button and enter the name of the Preset.
3. You'll notice that the new Preset now includes the list used for the existing Preset.
4. To **Remove** items from the list, click on the item and then click the Remove button. You can use **Shift** to select and remove a group of adjacent list items.
5. Click on the Function you want to add in the **Macro** list box.
6. Click on the Devices you want to add in the **Group** box.
7. When your list is complete, click on **Add to List**, then click **Save**.

Editing a Preset

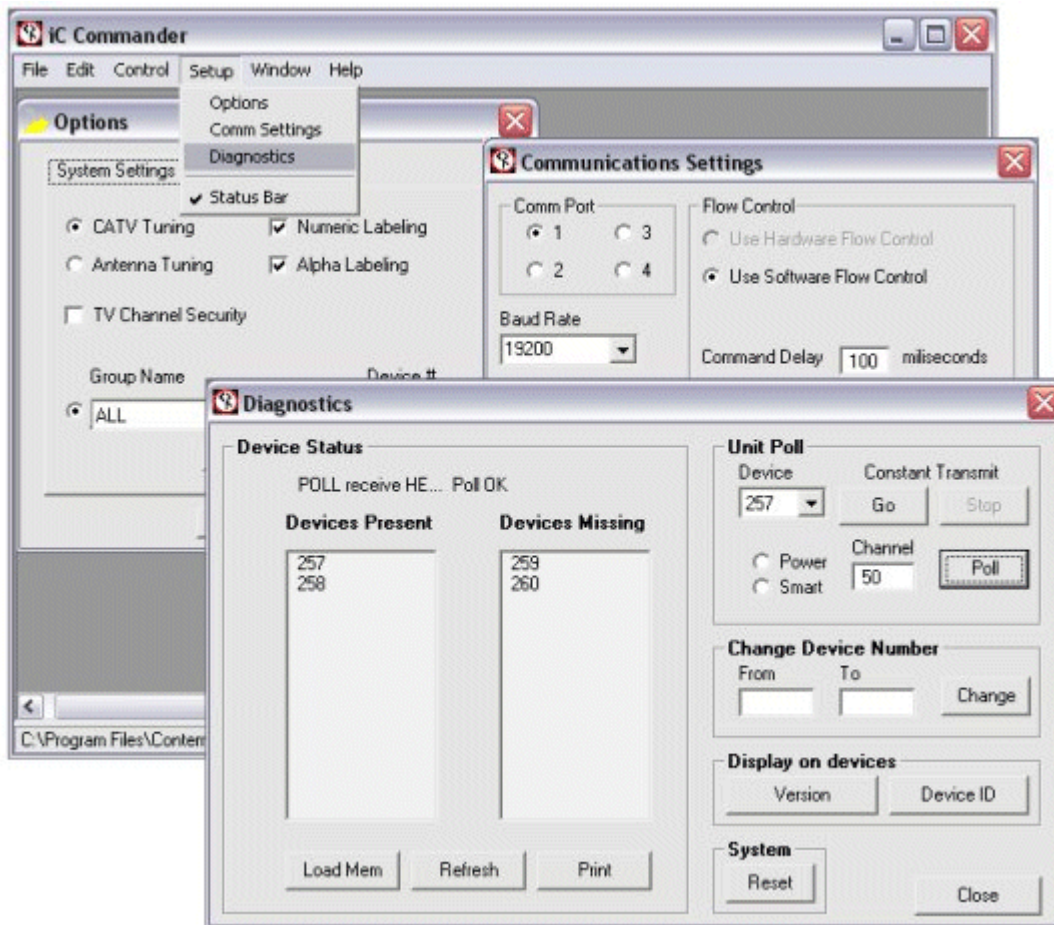
Select a Preset, then follow step 4 through 7 above.

iC Tip - Launching multiple Macros with the same Preset

You can combine multiple macros in a single preset. However, only one unique Device Group can be used within a preset. You can't send two macros to a Device Group with the same

name. The same rule applies to linking **External Control** Macros to Groups in a Preset - see the **Tip** in [External Control](#) for more information.

Setup Tools



Available only for Administrator access, the **Setup** series of iC Commander tools affect the overall performance of the system.

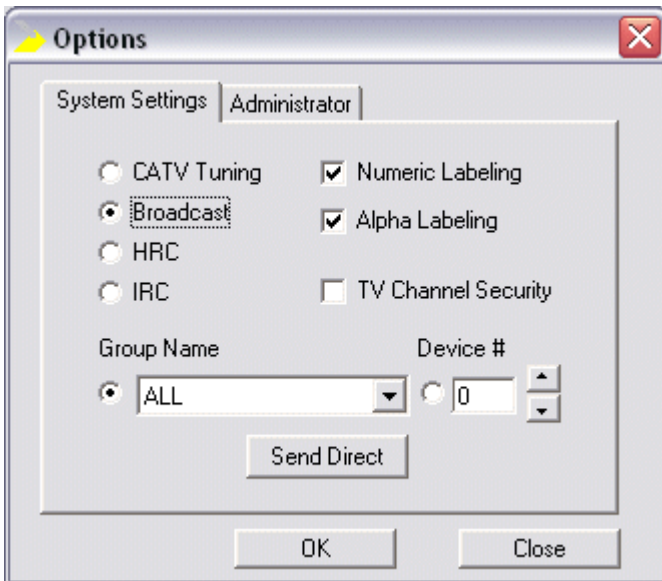
- **Options** sets overall tuning operation, label display, access passwords, control system sync, and debugging tools.
- **Comm Settings** selects the COM port and baud rate for control communication.
- **Diagnostics** tools sets up iC-Net devices and troubleshoots network operation.
- **Status Bar** turns the lower status bar on and off.

Setting Options

The Options tool establishes the basic operating parameters of the iC-Net system. You can easily change several key characteristics without changing system setup or programming.

Important - Options are saved to the Windows Registry as global program settings. You must close iC Commander to save the values to the Registry, File/Save will not. If you are preparing the database on a different PC than used for the installation, you can copy the database (*.icc) to the new computer, saving the file to the Program Files/Contemporary Research/iC Commander folder. However, you will need to re-enter the Options on the new computer.

System Settings Tab



To change the settings of the TVs and tuners, select one or more properties, then select a Group or individual device, then click **Send Direct**.

Tuning

Changes tuner settings for US CATV, off-air broadcast, HRC or IRC channel spacing.

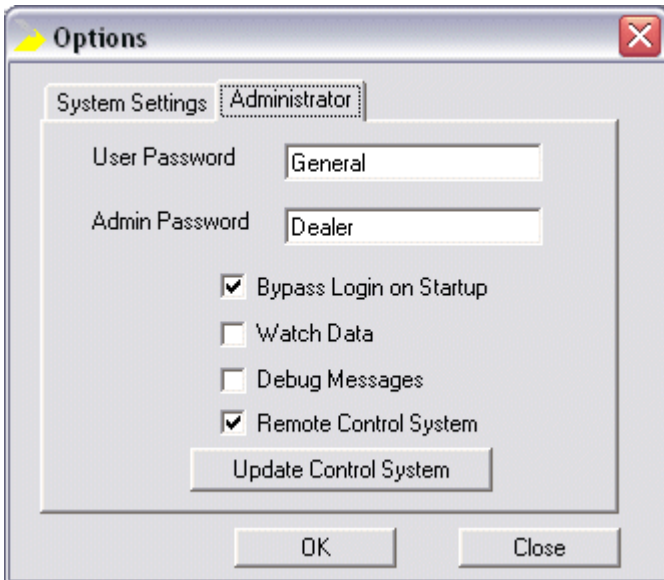
Alpha and Numeric Labeling

Using this parameter, you can selectively display the channel and text portion of a channel label. If only **Numeric Labeling** is checked only the channel number will be displayed. If only the **Alpha Labeling** is checked, just the name of the channel will show. This does not change any label information stored inside the TV controllers, just how it is displayed.

TV Channel Security

This function only applies to Smart TVs, not monitors with standard outboard TV controllers. When checked this parameter zeros out any channel ring stored inside the TV. If a Contemporary Research Smart Card is removed from a TV, the user cannot use front panel controls or an IR remote to change channels.

Administrator Settings Tab



Passwords

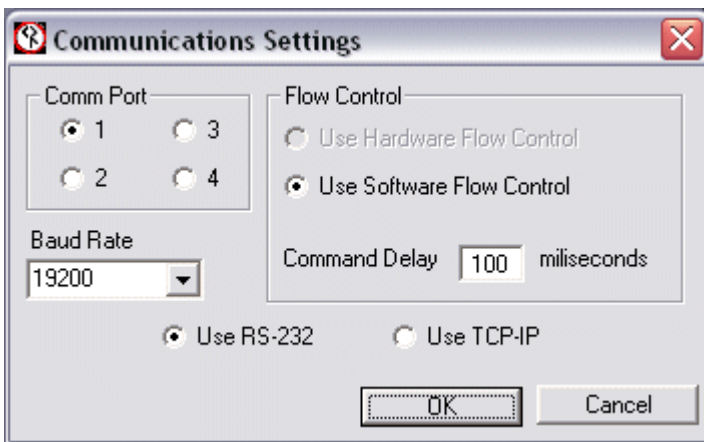
Only available if user logged in with admin-level password

- **User Password** sets user-level password - if blank, user can hit Enter to bypass login
- **Administrator Password** sets new dealer-level password - general and dealer-level users have virtually the same rights, only a dealer-level user can change passwords

Special Functions

- **Bypass login at Startup** skips administrator login (default setting)
- **Watch Data** opens a terminal window to view RS-232 strings sent from iC Commander
- **Debug Messages** creates an activity log for monitoring performance
- **Remote Control System**, when active, will "sync" data for device array and names, channel array and labels, and preset array and names. See [Control Integration](#)
- **Update Control System**. Manually syncs data with control system. String is not sent if **Remote Control System** is not selected. iC Commander will also sync the control system whenever the data changes

Communication Settings

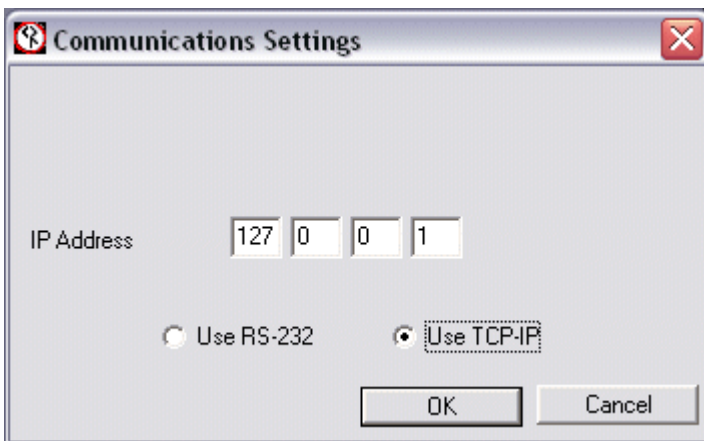


Right away, you'll notice a big change in the iC Commander COM port settings - TCP/IP/. This means you can connect over Ethernet to AMX NetLinx systems, Crestron Cresnet 2E systems, and the new ICE-HE Ethernet Head End.

For RS-232 communication, this tool sets the PC COM port, baud rate, flow control and command delay for communication between the PC and Head-End Network Controller (and optionally, to a control system operation in between the two)

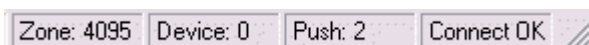
The window above shows the default settings, in most cases, you will change the COM port, but keep the other settings the same. Hardware Flow Control may not be available in all Contemporary Research components, check with the support team before using this feature.

TCP/IP Networking



To use Ethernet connectivity, simply click the **Use TCP/IP** checkbox and fill in the "Quad Address" of the receiving unit. Communication will be automatic with an ICE-HE Ethernet Head End, networking with an AMX or Crestron system will need additional programming and setup on the control system side. A pop-up window will confirm connectivity after you click OK or whenever you launch iC Commander.

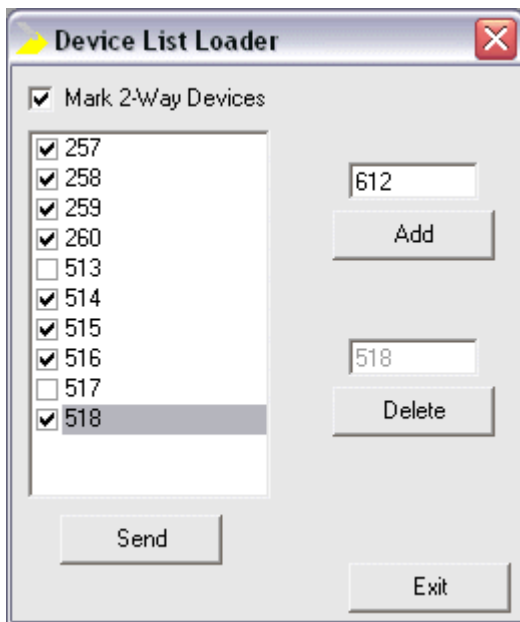
iC Tip: Confirming Connectivity



When you connect to the Head End, either from the Communication Settings window, or when iC Commander launches, check the right side of the Status Bar. If iC Commander is communicating with the Head End, you'll see "Connect OK" on the far right, and a test response (shown above) in the three Device windows. iC Commander automatically tests the

connection every minute.

Diagnostics - Device List Loader



The **Device List Load** window appears when you first select **Diagnostics**. In order to scan for active and missing devices on the iC-Net network, the Head-End Network Controller (HE) must have a list of 2-way devices stored in onboard memory.

Mark 2-Way Devices

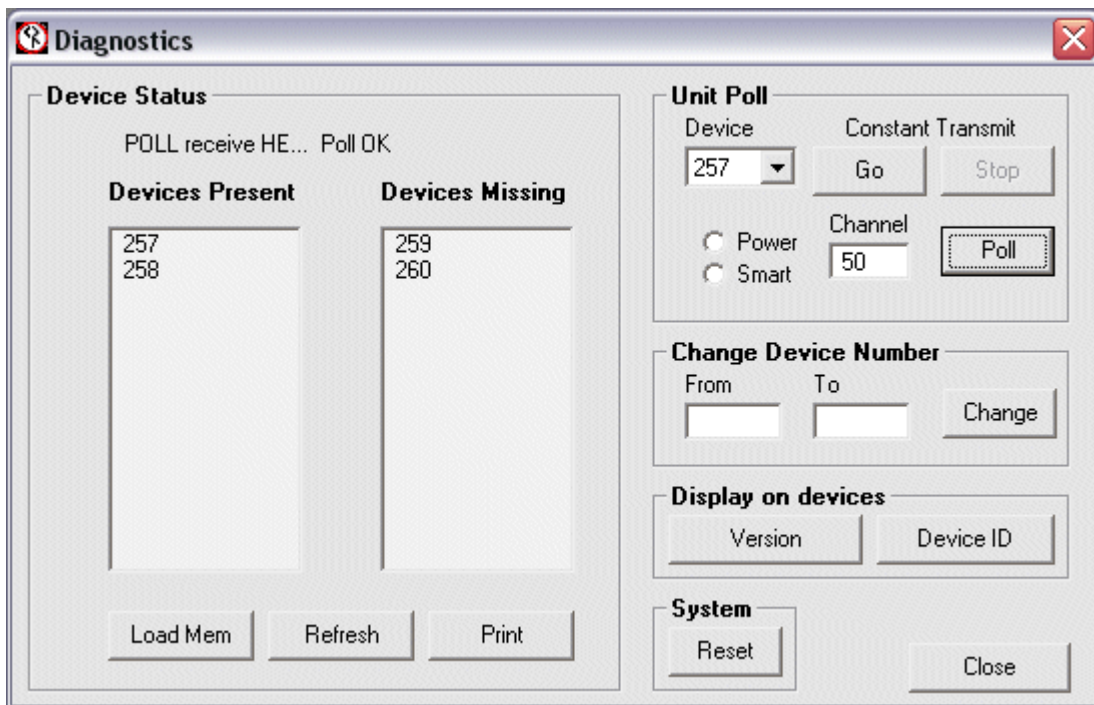
As noted above, the HE stores a list of online 2-way devices. 1-way iC-Net devices do not report back to the HE, so 1-way devices are not included in the list. When you first open the Device List Loader, you'll see a list of all the devices you've defined in the [Device Group](#) tool. Click the boxes for all the 2-way devices in the list. You can also use **Add** or **Delete** to adapt the list to your needs.

Click on **Send** to send the list to the HE. iC Commander will automatically switch to the [Diagnostics Tool](#) window so you can monitor list storage progress and diagnose device status.

iC Tip - Listing 2-Way Devices

Whether you're using a PC with iC Commander or a custom control system to control an iC-Net system, the process of loading the 2-way device list is crucial for proper system operation. First, storing the list in HE memory is useful for diagnosing system status from IC Commander and the front-panel LED on the HE (the LED flashes when the number of expected and active devices do not match). In addition, the HE will not pass on response information from a 2-way device to the RS-232 port unless it is included in the stored device list.

Diagnostics - Diagnostics Tool



The **Diagnostics** tool helps to troubleshoot and test system setup and operation.

iC-Net Feedback

The system will provide text feedback on the status of the device list sent to the Head-End Network Controller (HE). Some are fairly obvious, others are a more cryptic, provided as feedback for CR Customer Support.

- Use Load Mem to send device list to HE (no list saved to HE memory)
- Loading HE table - please wait (sending list to HE memory)
- Waiting for HE response - please wait (sending list to HE memory)
- Reset sent to HE - reset sent (loading in process)
- Reset received HE - reset OK (loading in process)
- HE response in queue - parsing data (loading in process)
- HE responded - device list complete (loading successful)
- Poll received HE - poll OK (Poll command received)
- Failed HE Response - try next list (device list error)
- Failed HE Response - no next list (device list error)
- Poll received HE - poll timed out (Polling error)

Load Mem(ory)

Click to display the [Device List Load](#) tool to select and load a the device list into HE memory. See instructions on previous page.

Refresh

Click on **Refresh** to scan the system for present and missing devices. In the example above, you would quickly know that two devices are off the iC-Net network. There could be several

reasons, including an incorrect device number in the database, a device set to the wrong address, no power to some devices, or a broken data link to some devices. One-way iC-Net devices are not included in the list, because they cannot reply to the HE.

Print

Print a report for present and missing devices.

Unit Poll

This tool tests operation and checks status of 2-way iC-Net devices. Use the pull-down list to select a specific device number.

To test the RF level of an iCC-Net device's return data signal, click **Constant Transmit**. This will cause a selected device to continuously transmit over the iCC-Net bus. The transmit will stop after 50 seconds, or after you press Enter on the keyboard. Stop this function before attempting any other iCC-Net activity.

Clicking on Poll will trigger the selected device to send back basic status information. The **Power** "dot" is highlighted if the unit has active DC power, while the **Smart** dot will be filled if the unit is a Smart TV controller. The **Channel** block will display the currently selected channel.

Change Device Number

This option can be very useful when you want to shift devices to different zones or change a device right from your PC. It's also very dangerous when used without thinking. If you change a device, you'll need to update your iC-Commander configuration data as well. In addition, be sure you're not assigning a device number that already exists.

Display on Devices

Clicking **Device Number** or **Software Version** will force all iC-Net devices to display the each unit's device number or software version using on-screen text. At present, you may not see the text on every device because the feature has not been added to all iC-Net devices as yet, and some devices do not have character generation capability.

Reset System

Clicking on this button resets all iC-Net devices and Head End, just as if you reset power to all devices.

iC-Net Zones

To simplify and speed system operation, iC-Net devices are structured into 16 zones, from 0 to 15. Zones 1 - 15 are used for systems, while Zone 0 is reserved for factory use. All the devices in each zone will respond to a **virtual device** number that serves as an "All-Call" command.

This structure dramatically impacts the speed of many system functions. For example, if you send a Power On command to device number 256, any device addressed between 257 and 511 will turn on instantly. Without the zone structure, the system would need to send a power on command to each device within the system.

For this reason, iC-Net integrators will group the system's zones to follow iC-Net zones. For example, all the user's *First Floor* TVs could be addressed between 257 and 511, so that all TVs in the zone can be controlled from a single device number, 256.

This is also a big time-saver when you create zones in the Device Collection Editor. To create a master zone for all first-floor TVs, you can enter one number instead of all the actual device numbers installed in the zone.

iC-Net Zone	First Device	Last Device	Virtual Device
1	257	511	256
2	513	767	512
3	769	1023	768
4	1025	1279	1024
5	1281	1535	1280
6	1537	1791	1536
7	1793	2047	1792
8	2049	2303	2048
9	2305	2559	2304
10	2561	2815	2560
11	2817	3071	2816
12	3073	3327	3072
13	3329	3583	3328
14	3585	3839	3584
15	3841	4000	3840
All Zones			4095

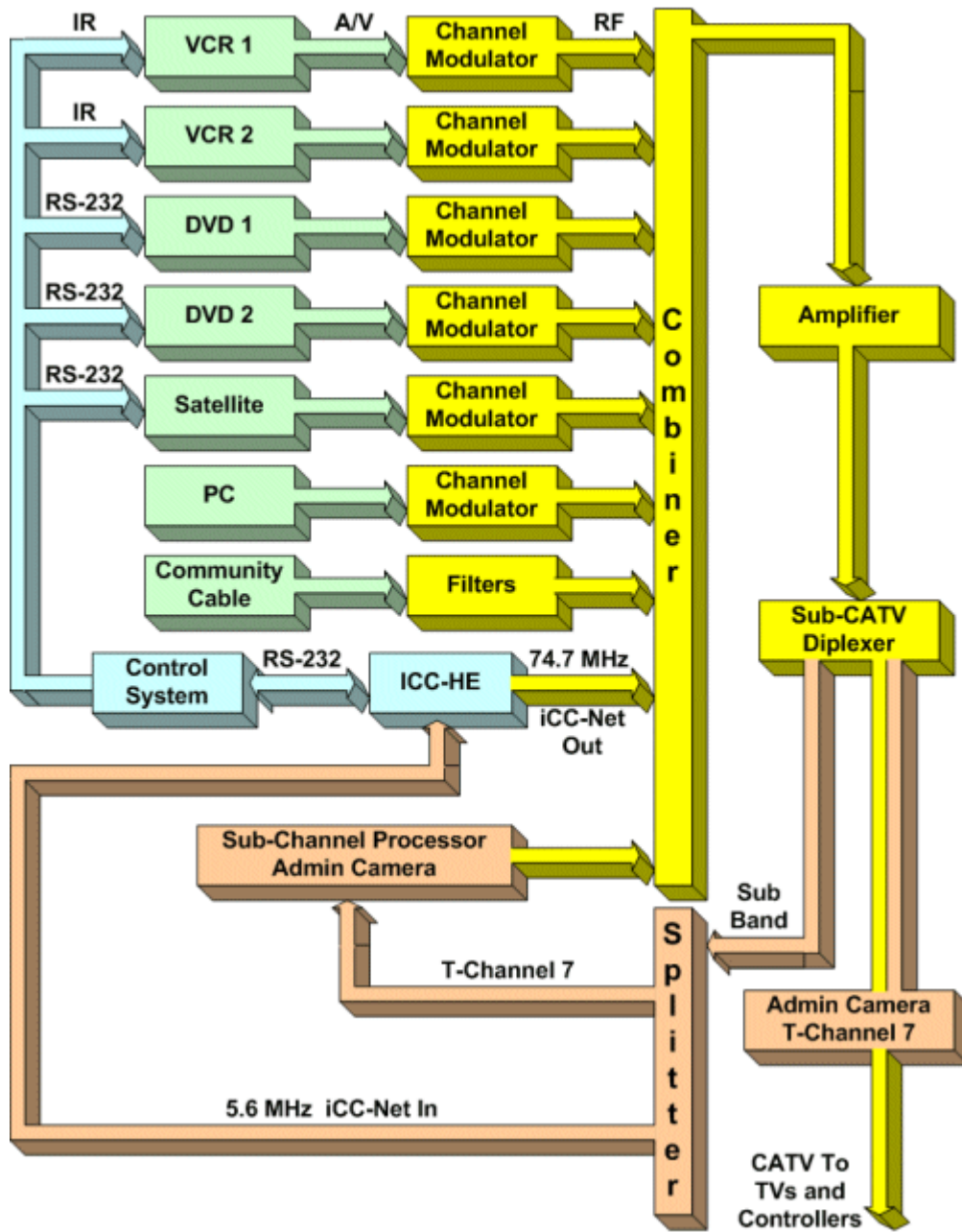
Sample System Map

You'll save yourself a lot of time and effort if you set up the map for your system devices, zones and names before your begin programming in iC Commander.

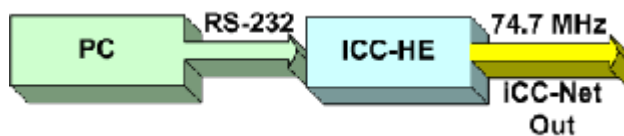
Floor	Area	Device	iC Zone	Collection	Collection
		256	1	Level 1	
1	Concession L14	257	1	Concession L1	All Concessions
1	Concession L15	258	1	Concession L1	All Concessions
1	Hallway 10	259	1	Hallway L1	All Hallways
1	Hallway 11	260	1	Hallway L1	All Hallways
		512	2	Level 2	
2	Skybox 210	513	2	Skyboxes L2	All Skyboxes
2	Skybox 211	514	2	Skyboxes L2	All Skyboxes
2	Skybox 212	515	2	Skyboxes L2	All Skyboxes
2	Bar 250	516	2	Bars L2	All Bars
2	Bar 251	517	2	Bars L2	All Bars
2	Concession L26	518	2	Concession L2	All Concession
2	Concession L27	519	2	Concession L2	All Concession
		4095		All	

As you can see in the chart above, it really simplifies editing and troubleshooting when you have all the devices, locations, zones and groups organized. Note that devices can belong to more than one Device Collection. With iC Commander it's easy to control a single device, a group of devices, or all devices.

iC-Net RF Architecture



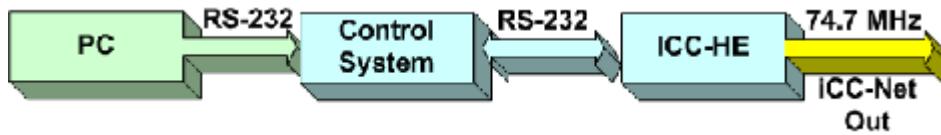
The diagram above shows the structure of a typical Contemporary Research media retrieval system. One of the key aspects for iC-Net communication is to provide a forward and return (sub-channel) path for data. Control data is sent out at 74.7 MHz and combined with other CATV channels. Return data from 2-way iC-Net controllers is sent at a sub-band frequency, 5.6 MHz, received by a Sub-CATV diplexer ahead of the amplifier, and sent to the RF input of the Head-End Network Controller (HE).



Direct PC Control

In a standard IC Commander system, a PC would connect to the RS-232 port of the HE, sending control commands over RF to ICC-series TV controllers or over Cat 3/5 wire to

ICW-format TV controllers.



Integrated PC Control

In an integrated IC Commander system, the PC would communicate to the HE through a data port on a custom control system. External Device commands sent from iC Commander can activate control commands programmed in the control system, allowing control of media sources, power, audio and other resources. In some custom applications, the integrator will control all TV Controllers through the HE, using IC Commander for testing and loading 2-way device numbers into HE memory.

About - Support

Software Version

iC Commander 4.5.0

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- 2.0 Original iC Commander
- 3.0 Updated iC Commander
- 3.0.2 Revision, replace with 3.1.0
- 3.1.0 Revision, fixes database issues in 3.0.2
- 4.0 Adds user-level access, control panels, control system integration, simplified menu structure and tools, reduced-cost update available for iC Commander 3 applications
- 4.5 Adds digital HD and SD cable tuning with CableCard equipped displays