IR Power User Guide
Copyright © Sigmatone
Version 1.0

SIGMATONE

Table of Contents

1 System Requirement 3
2 How "IR Power" Works?...4
3 Check Pulse First...5
4 IR Power Navigation...6
    4.1 Signal Indicator...6
    4.2 Status Pane...7
    4.3 Active Group...7
5 Learn Key..9
    5.1 Learn New Key...9
    5.2 Load Remote File..13
6 Understanding Groups...15
7 Application Control..17
    7.1 Add New Entry...17
    7.2 Actions Explained..21
8 Device Control...27
    8.1 Add Device-Control Data...28
    8.2 Changing Port-Data Manually...31
9 Settings..32

1 System Requirement

Minimum System Requirement
• Windows XP/2000/NT • 800Mhz Processor, 256 MB RAM • COM or Serial Port • Any Infrared Receiver (also supports home made receivers) • Any Infrared Remote (TV remote will also work)

	Terms	Used-For
1	program	Any application or software that user wants to control. For example, winamp, media-player, power-point etc.
2	keyboard-command	Any key combination which can be generated from your keyboard. For example, 'z' , 'a', 't', "Ctrl + Z", "Alt + V" , "Alt + Ctrl + U", "Shift + Alt + Ctrl + P" , "Win + Shift + Alt + Ctrl + W" etc..
3	remote-key	Any button on your remote-control.
4	keyboard-key	Any button on your keyboard.
5	keyboard-shortcut	Keyboard shortcut for any application or program. For example, "Alt + F4" is keyboard-shortcut for any program to close. Different programs may have their own set of shortcuts.
6	data-samples or samples	Stream of serial data received by "IR Power" when any button pressed on your remote.
7	key or key-name	Name associated with data-samples, this name association is made while learning. Learned remote buttons are called keys.
8	remote or remote-control	Any common Infra-Red remote control which comes along with TV, AC, Setup-Box etc…
9	IR Receiver	Hardware Infrared-receiver connected to your COM port.
10	Entry	Each "entry" is associated with a "key" and an "action"

2 How "IR Power" Works?

Keyboard
shortcuts

(1)	A button pressed on your remote.
(2)	a) IR Power recognizes the key. b) Finds keyboard-command associated with the key. c) Finds program associated with the key. d) Sends keyboard-command to the program.
(3)	For program, receiving keyboard-command from "IR Power" is same as receiving keyboard-command (key strokes) from your key board.

3 Check Pulse First

Before moving ahead it is very important to check that hardware and connection wise things are fine. Hence, without any configuration we will check the pulse first.

Follow these steps to check pulse.

1. Connect "Infrared Receiver" to your computer's COM port.
2. Launch "IR Power" from programs menu.
3. Press any button on your remote (pointing it toward IR-Receiver).
4. You should see "Signal Indicator" LED blinking green/red for any remote-key pressed.

If you see "Signal Indicator" LED blinking. Congratulation!

If you don't see any activity on "Signal Indicator" please check following.

a) Remote is working.

b) IR Receiver is working.

c) IR Receiver is connected to your computer's COM port.

d) Remote has good batteries.

e) Port and "Signal Detection" settings are proper in the "Settings Tab".

4 IR Power Navigation

"IR Power" has five tabs "Application Control", "Device Control", "Learn Key", "Settings" and "About". Each of these tabs can be accessed by a mouse click (as shown below).
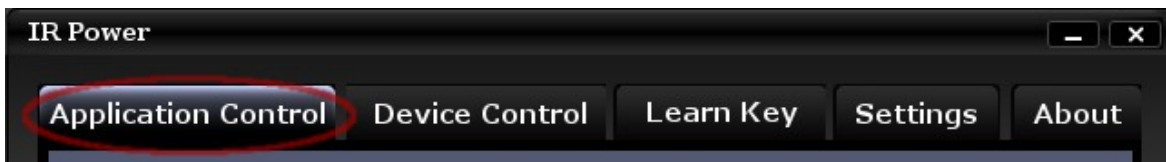
Heading of the active tab glows to provide navigation aid.

4.1 Signal Indicator
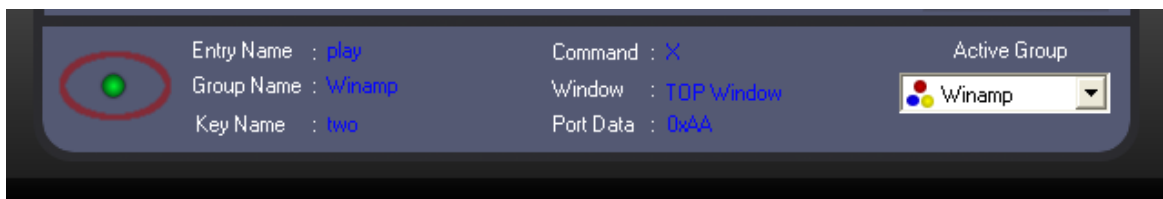
Signal Indicator LED blinks green/red in response to any button pressed on your remote. This blinking LED shows that "IR Power" is receiving signals. This also indicates that your "Infrared receiver", remote-control and "IR Power" are working fine. "Signal Indicator" should work without any learning.

If "Signal Indicator" is not responding to your remote-keys and always gray, please check following.

a) Remote is working.

b) IR Receiver is working.

c) IR Receiver is connected to your computer's COM port.

f)   Remote has good batteries.

d) Port and "Signal Detection" settings are proper in the "Settings" Tab.

4.2 Status Pane
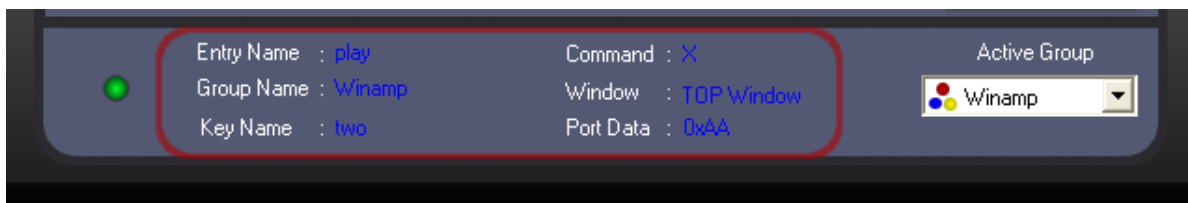
When key on your remote is recognized by "IR Power", status related to that key is reflected in the status pane.

1	Key Name	Learned name of the key.
2	Entry Name	Name of the entry, if entry is made otherwise blank.
3	Group Name	Current active group.
4	Command	Keyboard-command which was issued after key reorganization.
5	Window	Window to which above keyboard-command will be sent, Top-window or specific-window.
6	Port Data	Data to be sent out on parallel-port in-order to control devices present on parallel port.

4.3 Active Group
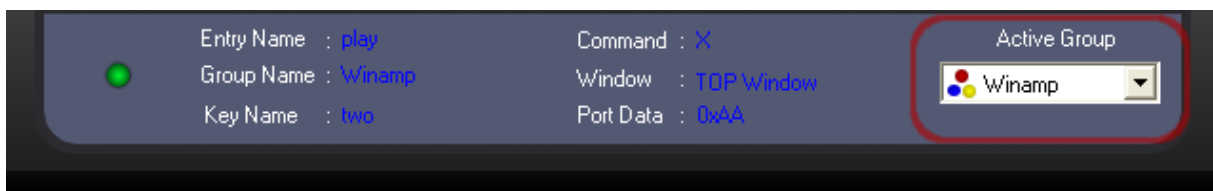
"IR Power" provides you a powerful way to control various programs using same remote-key. For example, "stop" button on your remote can stop your mp3 player and stop your media-player. Now the question is, how "IR Power" knows which program to stop when "stop" button is pressed?

Answer lies in Groups! Same remote-key can be placed under multiple groups and in each group, the action associated with key can be different. Hence when "stop" button is pressed, "IR Power" always picks the key and action from the "Active

Group". Any group can be made active, but only one group can be active at a time. It is like giving multiple roles to your remote and the roles can be change just by changing "Active Group".

Keys are placed within groups as "entries", each entry is associated with a key and an action. In simple language you can say, a key and action forms an "entry".

5 Learn Key

"Learn Key" is a place where "IR Power" learns about your remote buttons. All buttons on your remote for which user wants "IR Power" to take an action, should be learned first. Learned buttons are called keys. User needs to follow a particular sequence to make "IR Power" learn an individual button. For an individual button learning is one time task.

5.1 Learn New Key

Any new can be learned by following the steps given below.

a) Select "Learn Key" tab
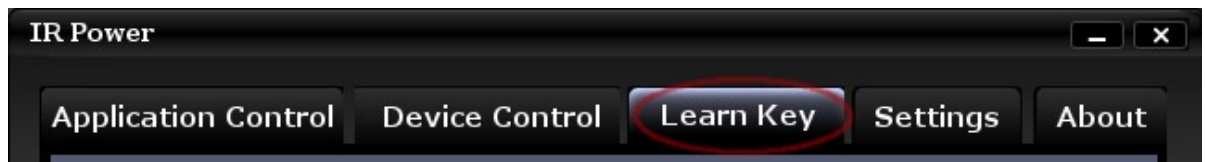
b) Click "New" button

c) Enter any name for your key in "Key Name" edit box.
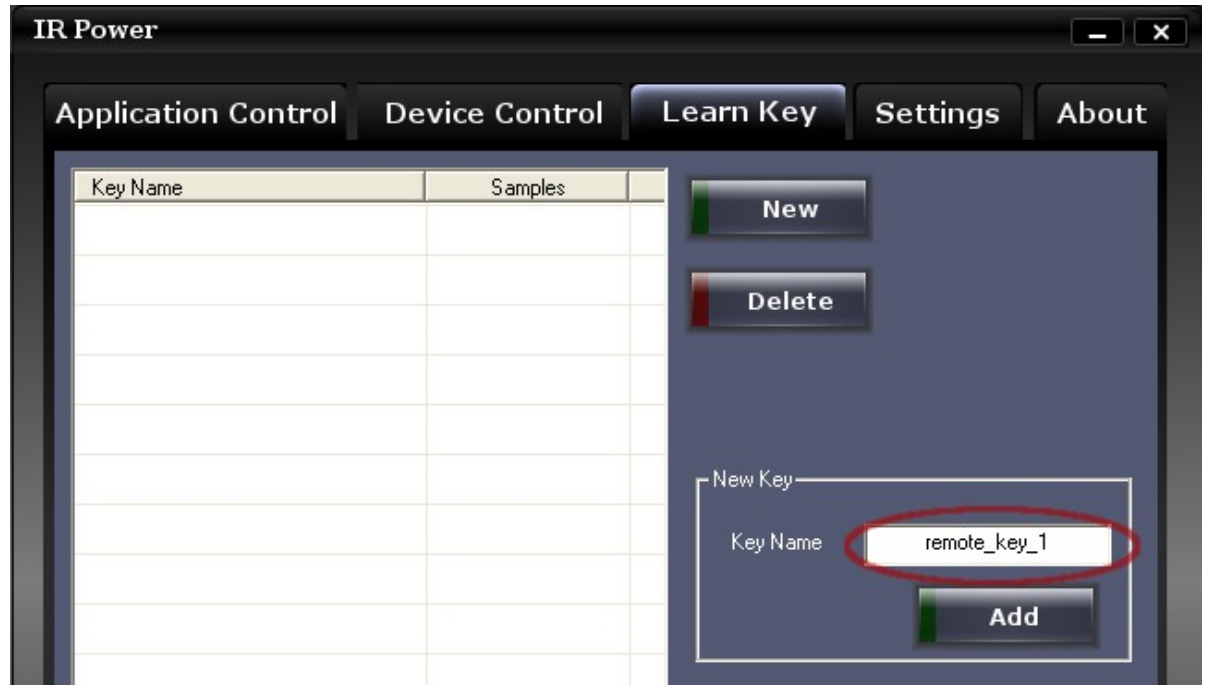
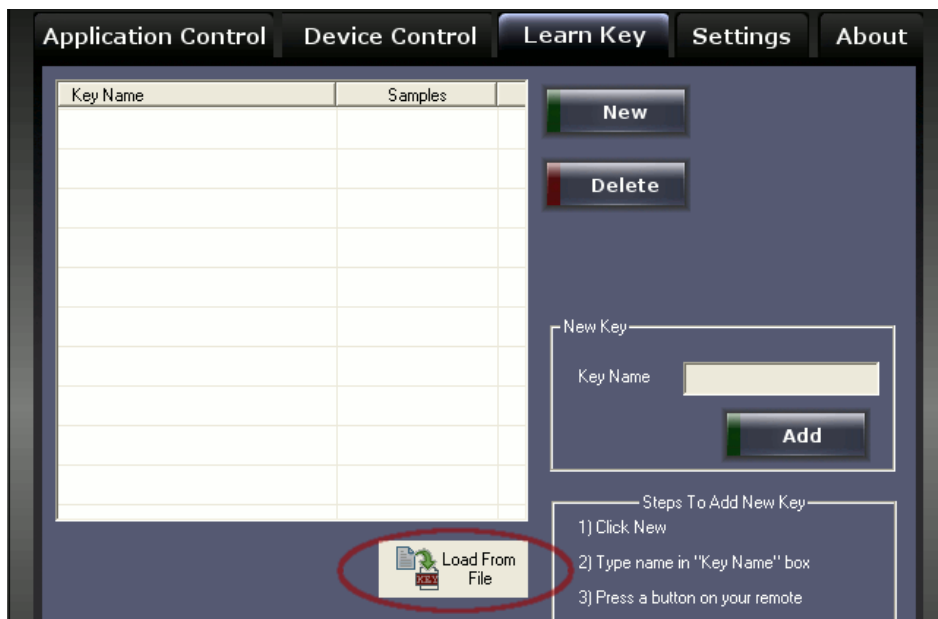d) **Now press a button of your remote only once.**

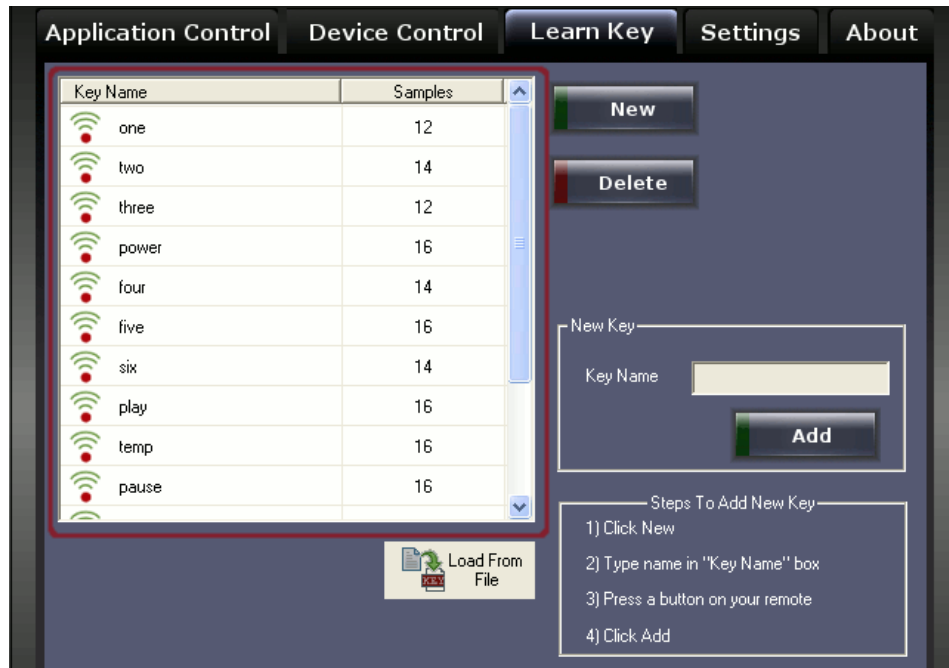   **Any of the following can result in wrong learning.**

   a. **Pressing remote-key for too long duration (press remote-button momentarily while learning)**

   b. **Pressing remote-key repeated times (you should press remote-key only once while learning)**

   c. **Any spurious signals caught by your infrared receiver**

   If you think you any of the above condition has happened, you can simply click "New" to flush samples and start again. This flushing won't affect already learned keys, those keys are safe.

e) **Click Add button**
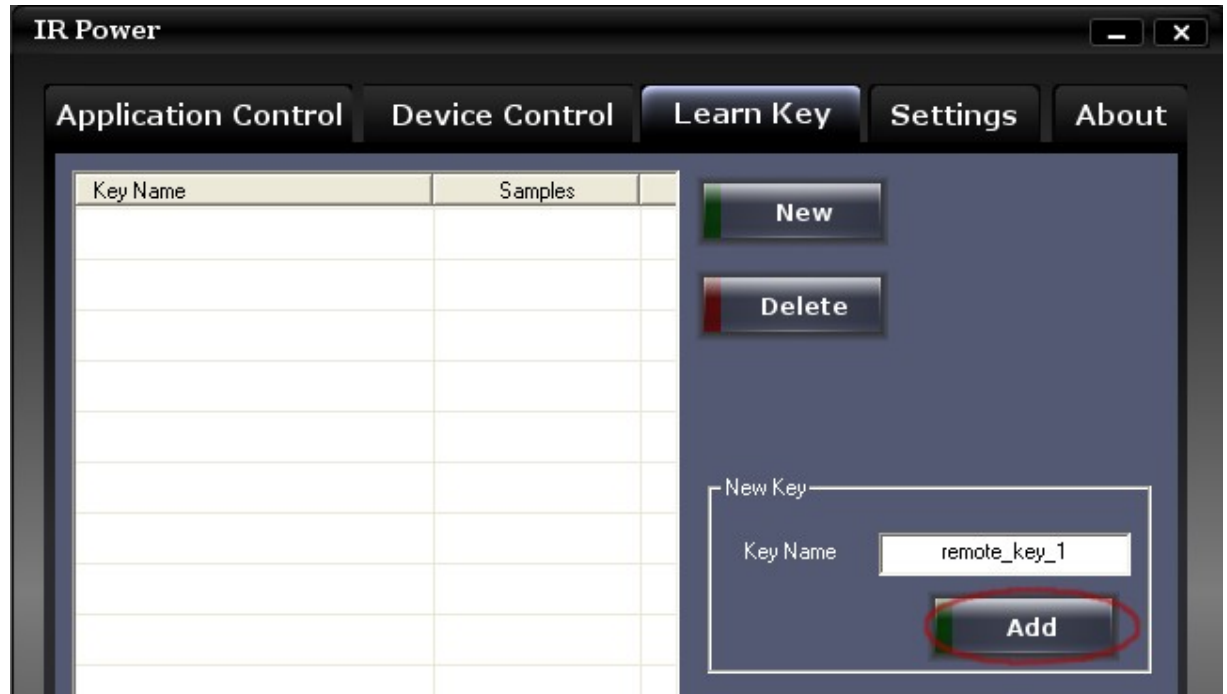
New key will be added in the key list as shown below. "Samples" information along with each key shows the number of data bits received while learning. This may provide a clue if learned button is not getting recognized by "IR Power". **Please note that "Samples" value/count of all learned keys may not match to each-other, however they may be quite close.**
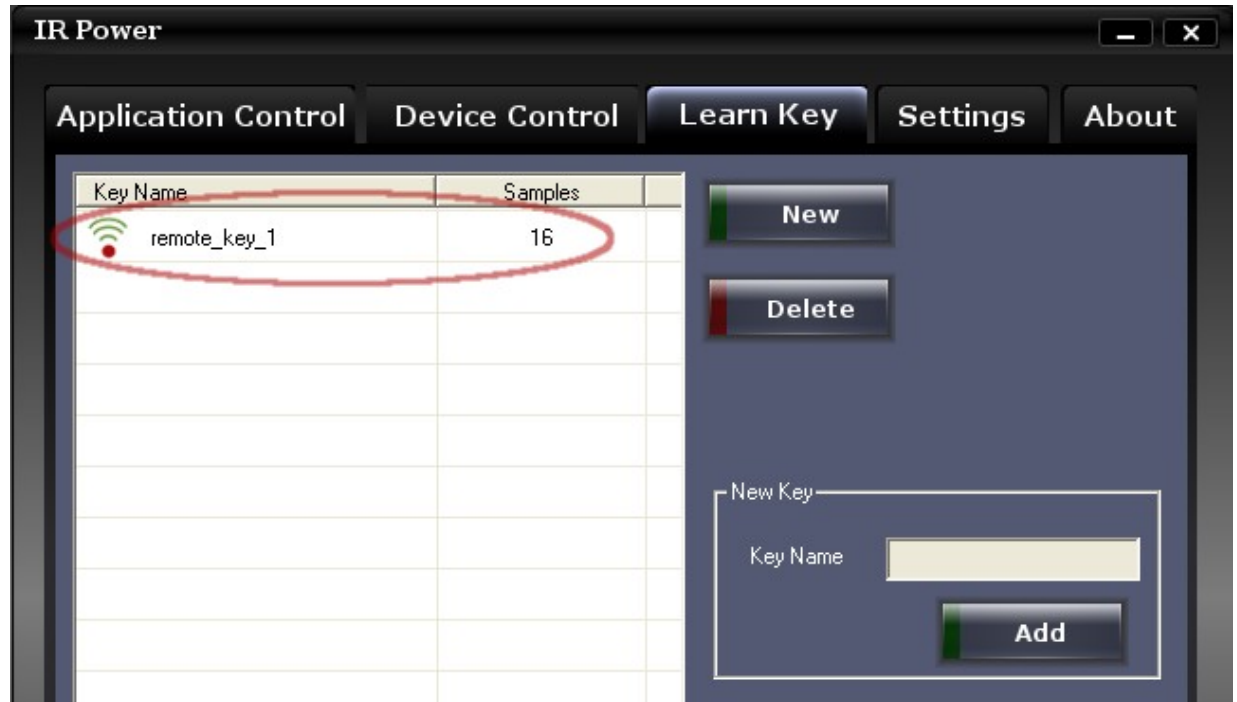
f) **Test New Key**

To test your new key, simply press the same button on your remote again. If learning had happened correctly the status-bar should show the key name. Each time this key is pressed, "Key name" on status-bar changes its color and gives a visual indication that key is recognized.
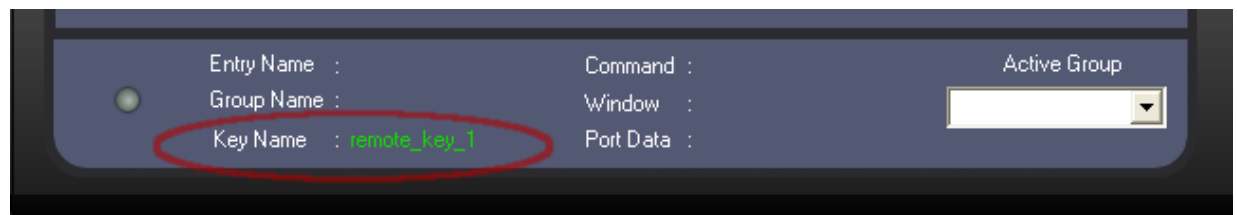
If you find that "Key Name" status is blank or not responding to your remote, indicates that the learning didn't happen correctly. In such scenario simply delete this key using "Delete" button and start from step-B again.

Any of the following can result in wrong learning.

a. **Pressing remote key for too long duration (press remote key momentarily while learning)**

b. **Pressing key repeated times (you should press key only once while learning)**

c. **Any spurious signals caught by your infrared receiver**

5.2 Load Remote File

If you have remote-file for your remote, you can directly load it. This will save your time and key learning effort. You may save your remote file by exporting it. You may also submit it to "Innovative logics" website so that people using same remote may use it.

To load remote-file, go-to "learn key" tab, click "Load From File" button, browse and select your remote.dat file.

Above image shows keys loaded from the remote file.

6 Understanding Groups

Winamp	
Group 1	
KEY 1	Power-On
KEY 2	Play
KEY 3	Stop
KEY 4	Pause

Media Player	
Group 2	
KEY 1	Power-On
KEY 2	Play
KEY 3	Stop
KEY 4	Pause

Power-Point	
Group 3	
KEY 1	Launch
KEY 2	Next Slide
KEY 3	Prev Slide
KEY 4	Close
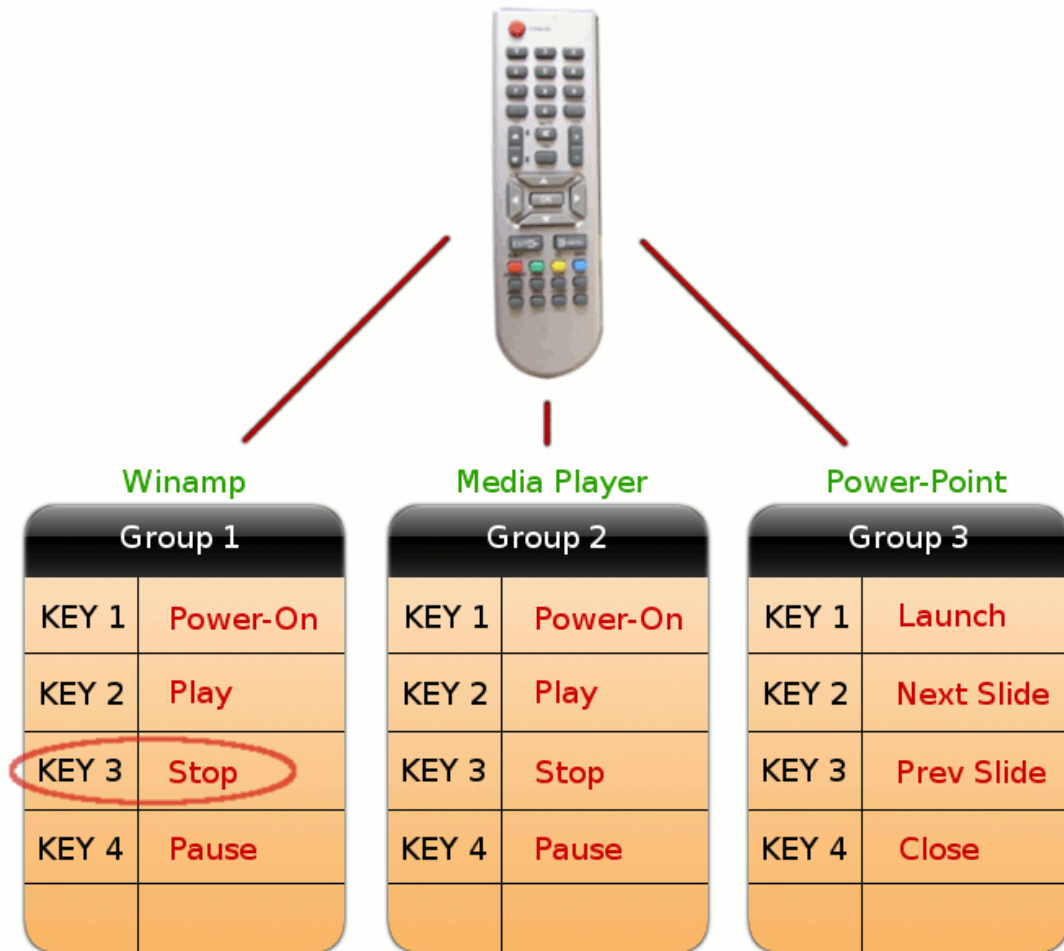
Using group, user can use same remote-key to control various programs.

The picture above explains how you can use same 4 keys "Key 1", "Key 2", "Key 3" and "Key 4" of your remote to control 3 different programs.

 Each *Group* is a collection of *Entries*, and each *entry* is associated with a remote-key and an action it has to perform. For example, group-1 (winamp) has 4 *entries*, entry-3 says key = "KEY 3" and action = "Stop".

When "Key 3" is pressed on your remote "IR Power" will send "Stop" command to winamp if Group-1 is Active. Similarly, "Prev Slide" command will be sent to Power-

point program when "Key 3" is pressed and group-3 is active.

User can have multiple groups and any group can be made active. **Only one group can be active at a time.**

7 Application Control

"Application control" tab is the place where you manage your remote-keys and control their behavior.
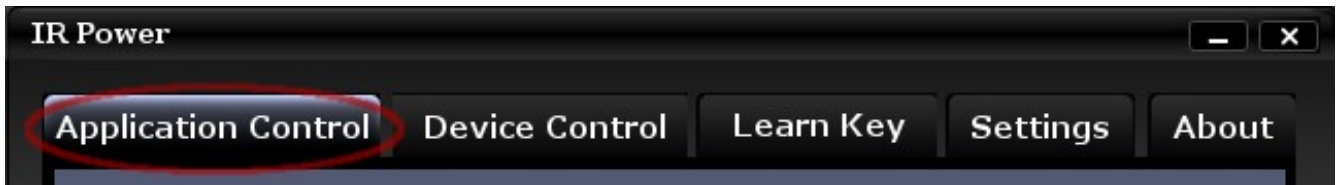
We will use the key remote_key_1 learned in chapter-2 ("Learn Key") to launch winamp using following steps.

7.1 Add New Entry

a) Enter a Group name

Since we want to control "winamp" we will add group name as "winamp", user may put any name which is intuitive.
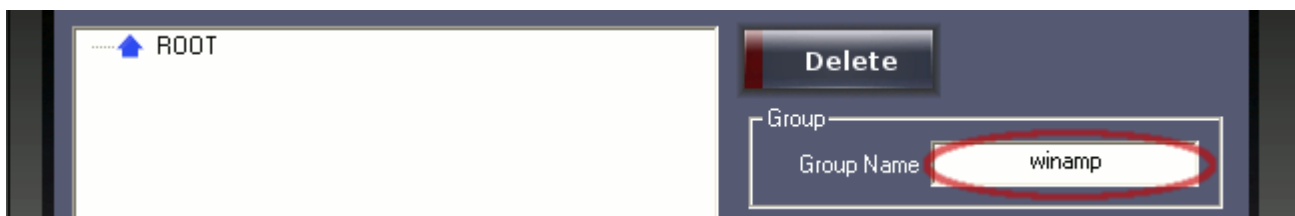
b) Enter *entry* name

Provide an entry name in the edit-box. Since we want to launch winamp using this entry, "Power-On" should be suitable name. User may give any name.

c) Associate a KEY

Click on the drop-down key-list, you will find all the learned keys there. In our case we have learned only "remote_key_1" hence we will find only that one. Select "remote_key_1" to associate it with this entry.
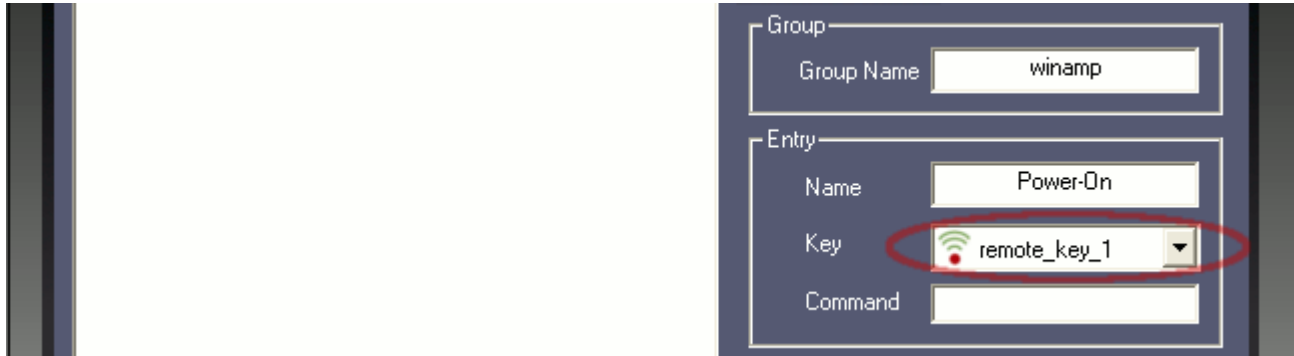
d) Enter Command

This is the place where you specify your keyboard-command, and the same command is sent to the program when the associated button on your remote is pressed. This keyboard-command can be any keyboard-key combination, for example when you want to close a program you send Alt + F4 keyboard-command to a program.

 You need not type whole "Alt + F4" yourself, you just need to select the command edit-box and press the keyboard-key combination. For example to specify "Alt + F4", click on command-edit-box, press Alt and while Alt is pressed press F4, "IR Power" will automatically detect the combination. A keyboard-key combination for Ctrl + F8 is shown below.

In our case we just want to launch the winamp hence we need not specify any command (let it be blank, as shown below). Commands are used when the program is already running and you want to control it using keyboard-commands.
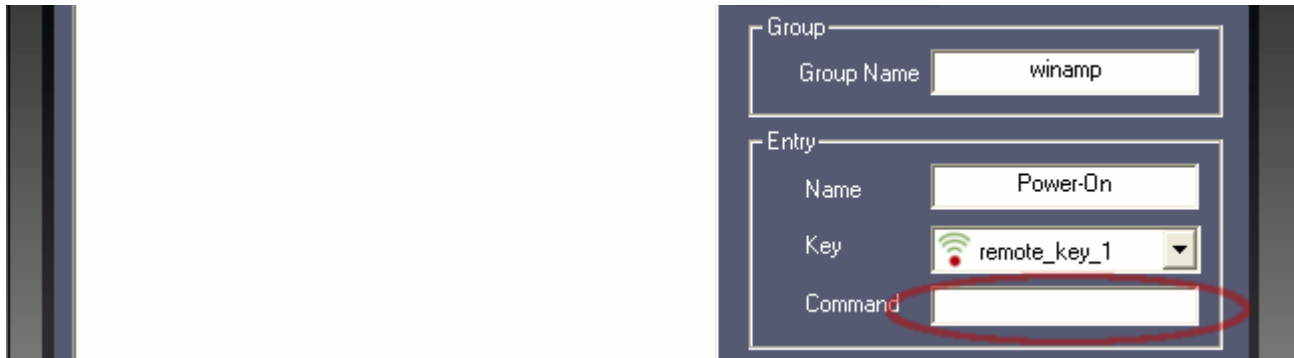
e) Specify Action

Detailed explanation on Actions is covered in "Actions Explained" section. Here we will just select "Launch an Application" which enables the browse button. Use browse button to locate executable of winamp (generally found in C:\Program Files\Winamp\winamp.exe) and then click Add.
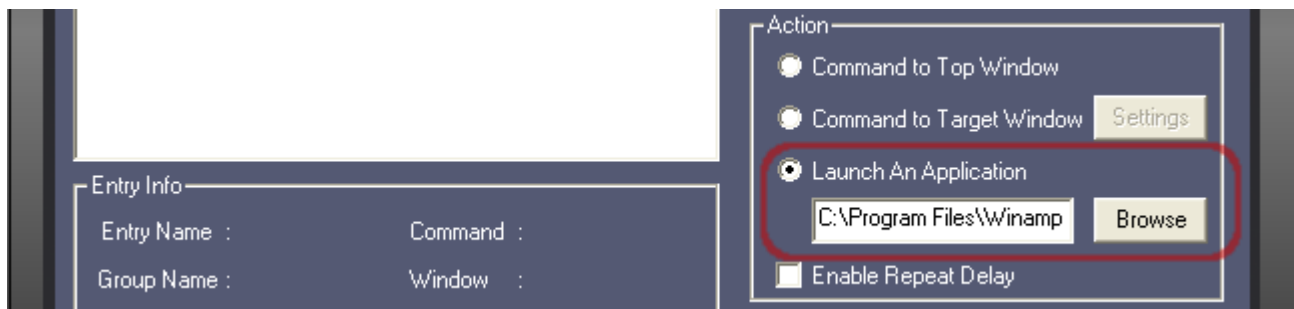
New entry should get added to the *root* along with its group (shown below).
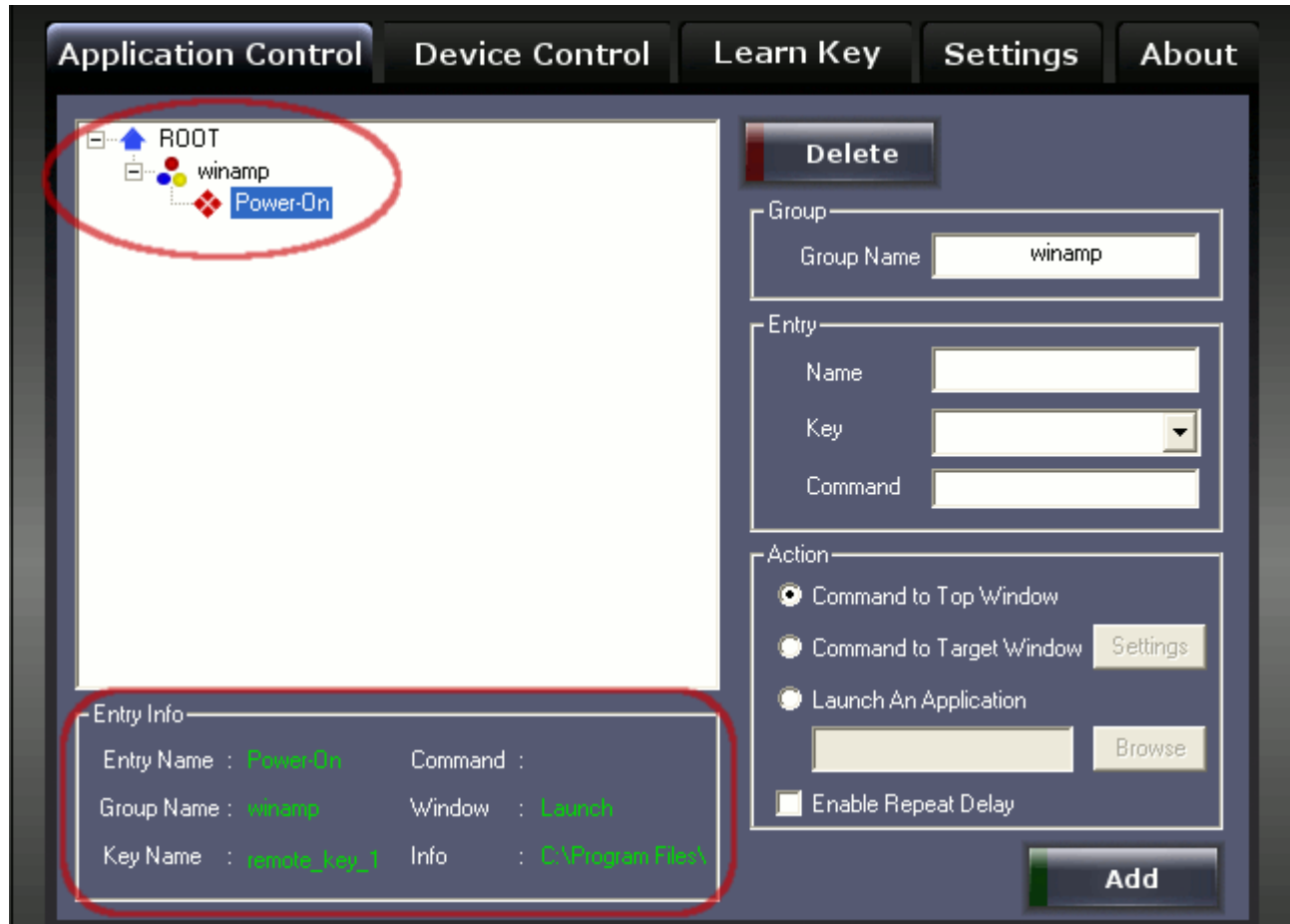
When entry-name "Power-On" is clicked, information related to it gets updated in the "Entry Info" box (shown above).

f) Test

To test, first close winamp if already running and press button "remote_key_1" on your remote.

The winamp should get launched and status-bar should reflect the relevant information.

7.2 Actions Explained

In "Application Control" panel for each entry you have there *action* options.
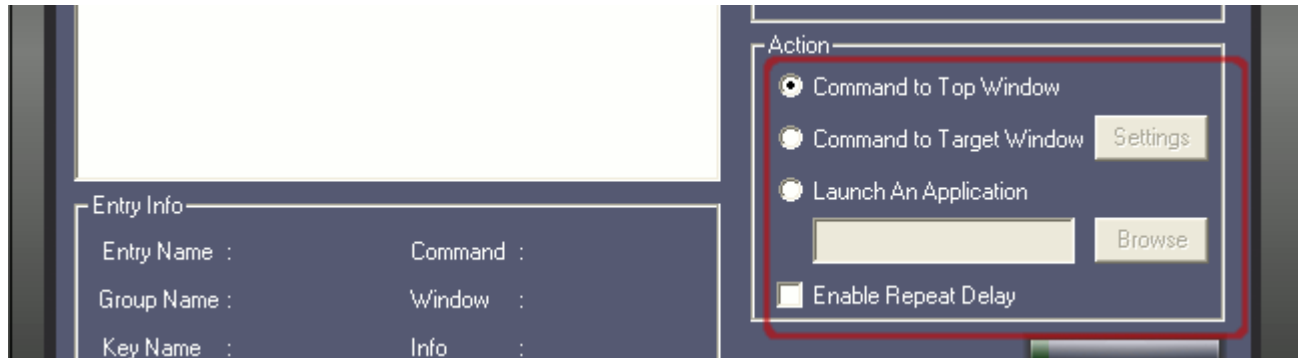
A) Command to Top Window

This option sends keyboard-command to the focused window, hence just by changing program's focus you can route command to different programs. This option is very useful in scenario where specific window detection is not possible.

B) Command to Target Window

You can specify the target program to which you send your keyboard-command. When this option is selected "IR Power" first finds the specified program from current running programs and then dispatches the command to that program's window. Hence, in this option keyboard-command will always go to the specific program, even when it is not in focus.

Now, let's see how "IR Power" identifies your specific program among other programs running on your computer. "Command to Target Window" selection enables the "Settings" button on the right-hand side. This "Setting" button allows you to specify the criteria on which your program will be identified.

Target Window Settings
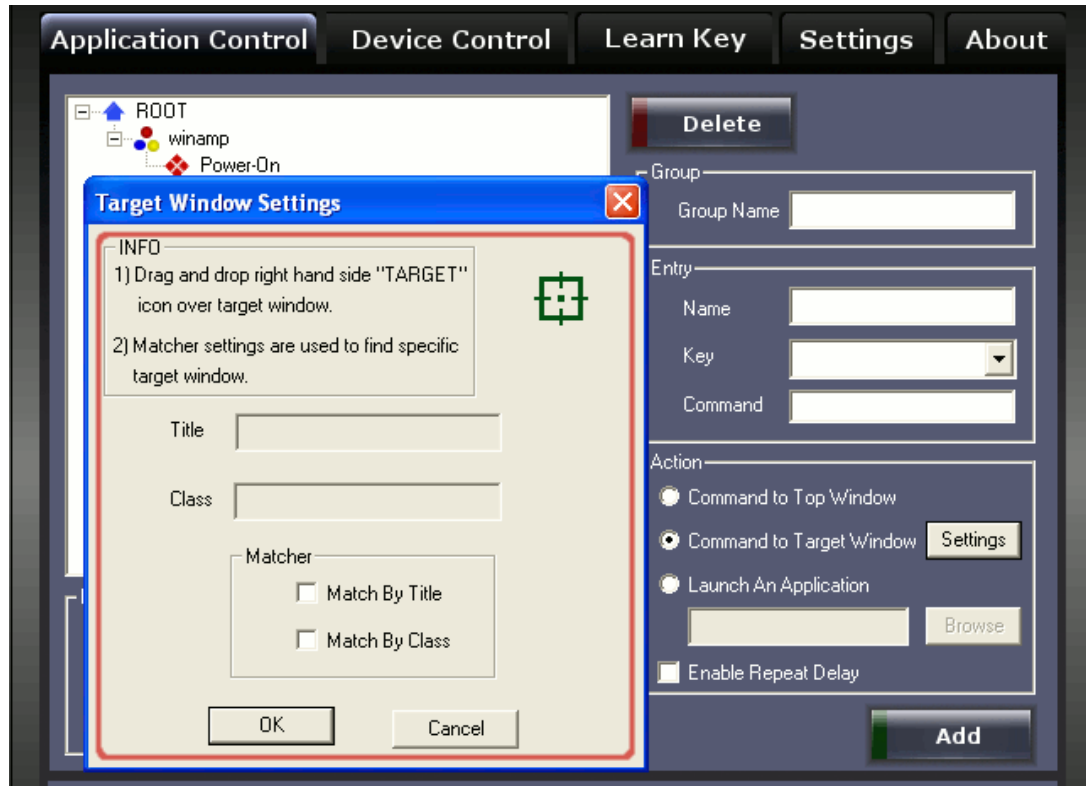
Click on Settings button launches "Target Window Settings" dialog window, here you specify your specific program and matching criteria for identification.

To specify your specific program simply drag the green target icon and drop it to your program's main window. Please note that target-icon should be dropped to the main window of your program and not to the sub window.
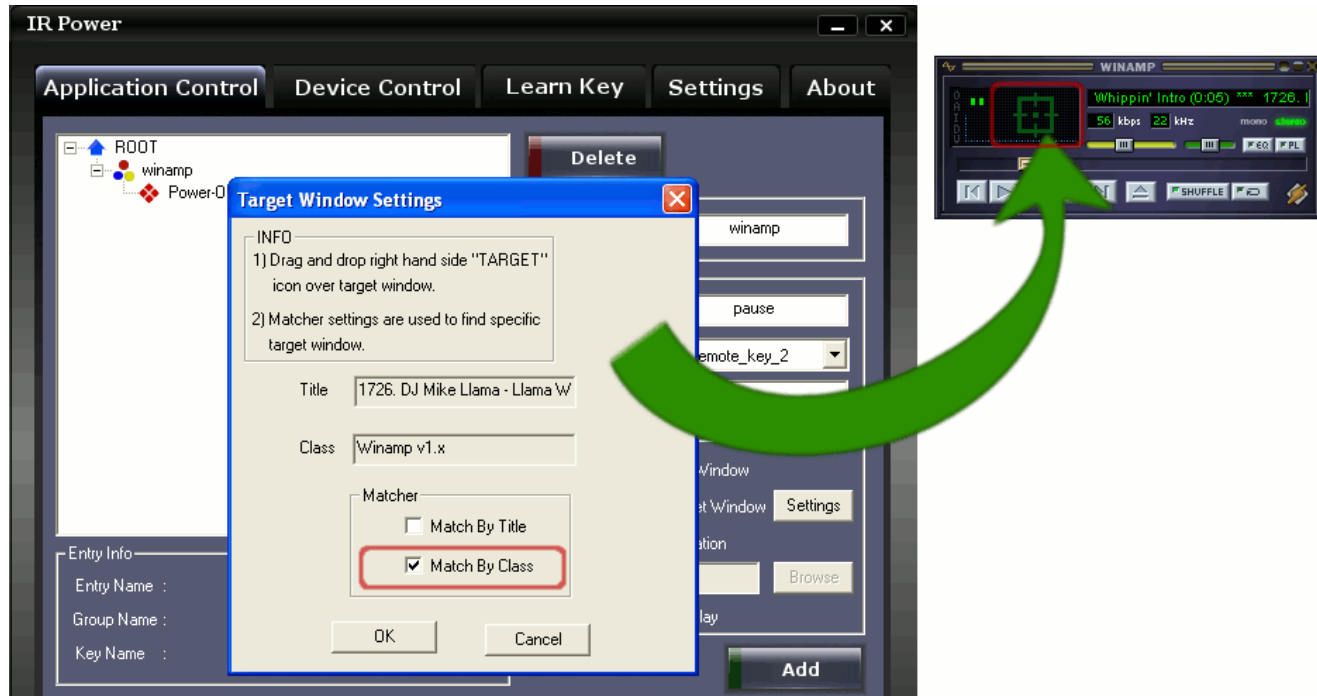
The "Title" and "Class" of program-window will automatically get update. In the matcher section user can specify the criteria to match for "Title", "Class" or both. Here user should select matcher such that it becomes easy for "IR Power" to find this program among other running programs.

For example in winamp case, "Title" field gets updated with current-song and "Class" field by "winamp v.1x" value, hence we should not select "Match By Title" which keeps changing with current song, but select "Match By Class" as shown above. After selection is made click "OK" button.

Manually Editing "Title" and "Class" fields (for target window)

It may happen that user wants to edit "Title" or "Class" field manually before making entry. For this, user needs to enable this feature from the "Setting" panel, and re-launch "Target Window Settings" dialog window.
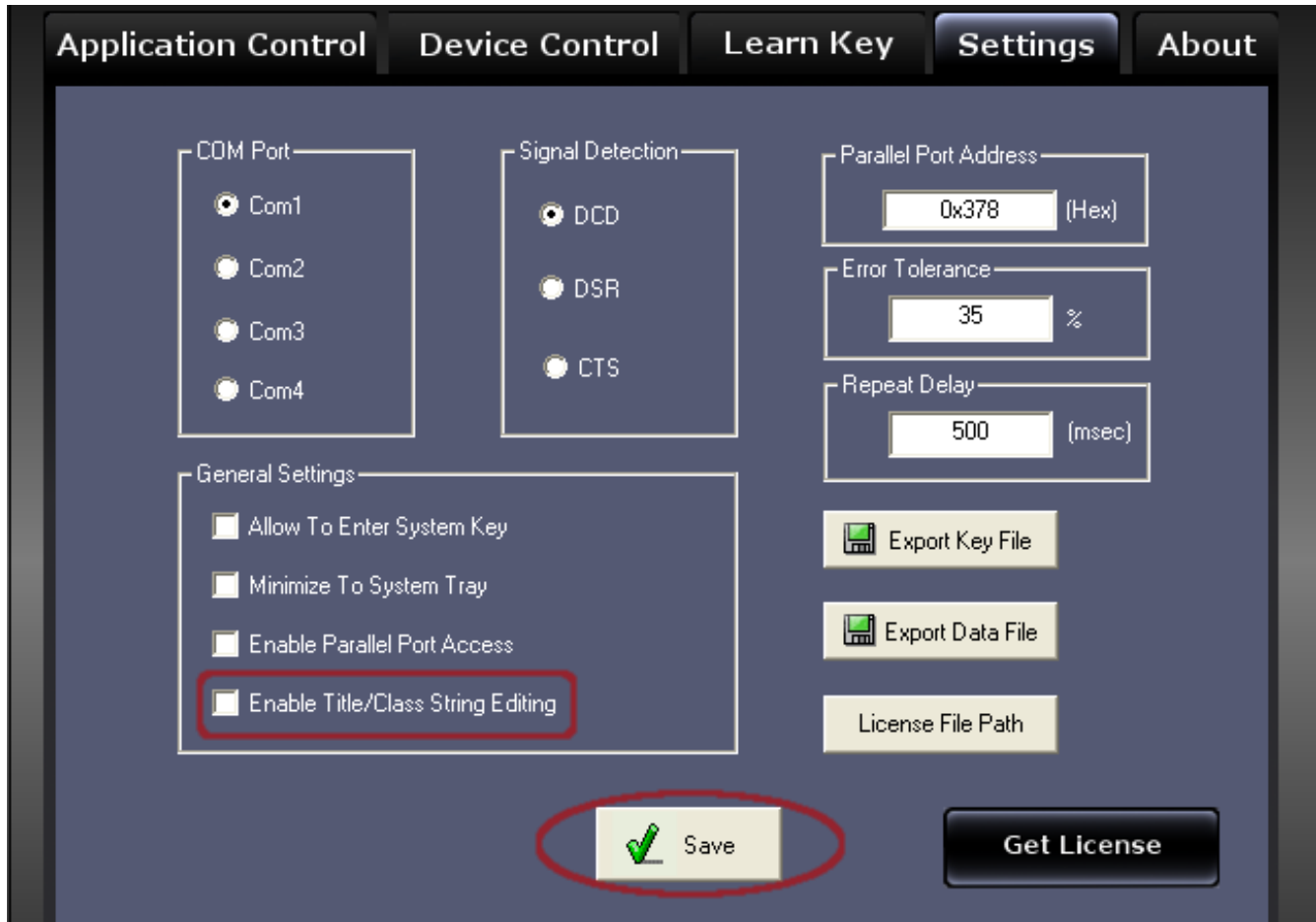
C) Launch an Application

This option lets user to start/run any program from their remote. The right-side "browse" button is used to browse and point to the executable-file.

Automatic Program Association

Instead of pointing an executable-file user may also point to a non-executable file. "IR Power" will automatically find program-association and will launch the program. For example, user may directly point to a video file, and when remote-key is pressed "IR Power" will automatically launch this video in your video viewer.

D) Enable Repeat Delay (ERD)

Some remote-controls keep sending same data repeatedly till the remote-button is pressed, which may some time result into annoying behavior. For example, suppose your remote is of that type and you pressed your next-song button bit longer (which is very natural), but since your remote has transmitted next-song multiple times you mp3 player will skip multiple songs instead of just the current one.
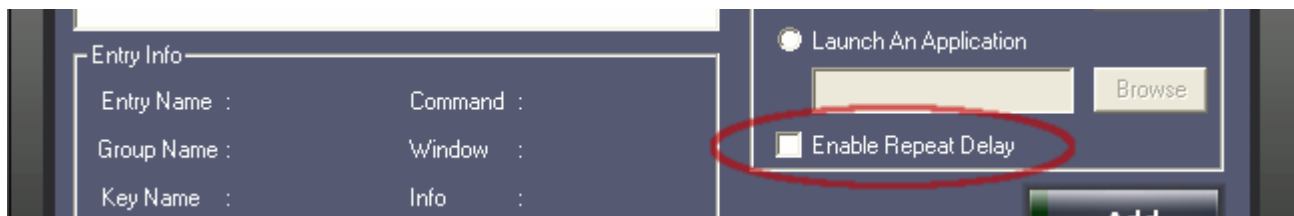
To deal with this problem "IR Power" provides you "Enable Repeat Delay" feature. Enabling this feature says that whenever an entry with ERD is executed, don't process further entries till the delay-time. During this delay-time all the received data will be flushed. The delay-time is in milliseconds and can be programmed through "Settings" panel. Delay-time is global and affects both new and old entries. ERD enabling feature is per entry.
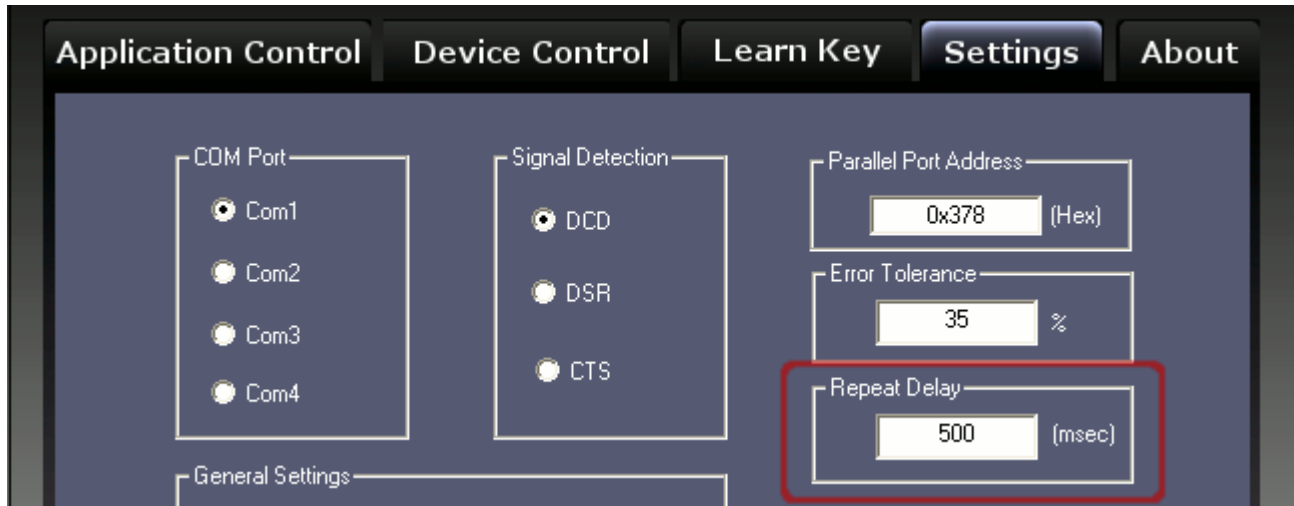
For some requirement user may like to keep ERD disabled, for example while controlling volume, user would like to keep increasing/decreasing volume till remote-key is pressed.

8 Device Control

You can connect your external equipment/devices through your computer's "Parallel Port" and can control them using your remote. Imagine a home theater application you would like to turn-off lights using remote and then play the movie. This can open new door of creativity for you.

Device Control can be accessed through "Device Control" tab (as shown below)

Follow following steps to add device-control Data.

8.1 Add Device-Control Data

a) Enable Parallel-Port Access.

By default parallel-port access is disabled, you need to enable it before using this feature. To enable access, go-to "Settings" tab, tick "Enable Parallel Port Access" and click "Save".
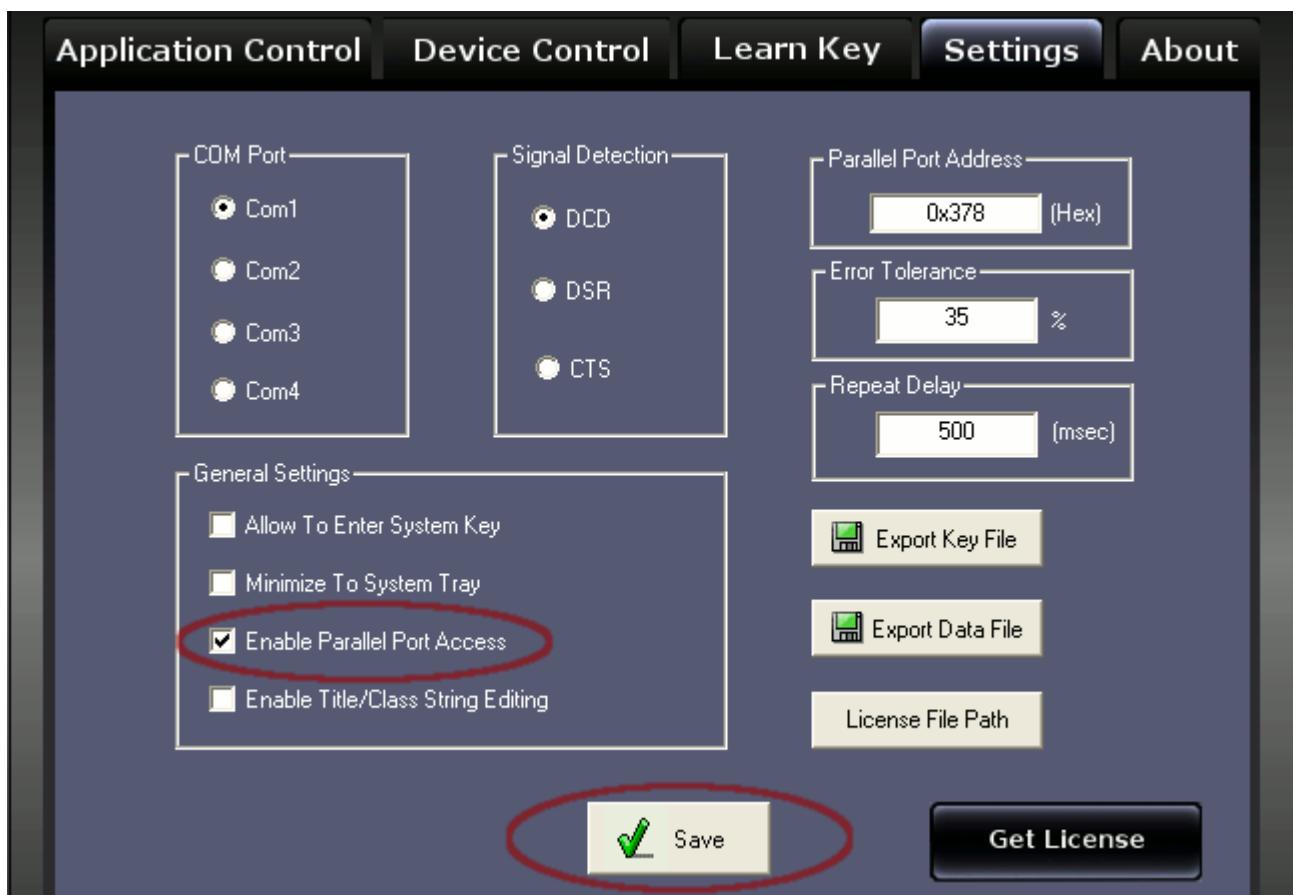
Once the access is enabled come back to "Device Control" tab. You may find that current data on the parallel port is reflected on the parallel-port-status (as shown
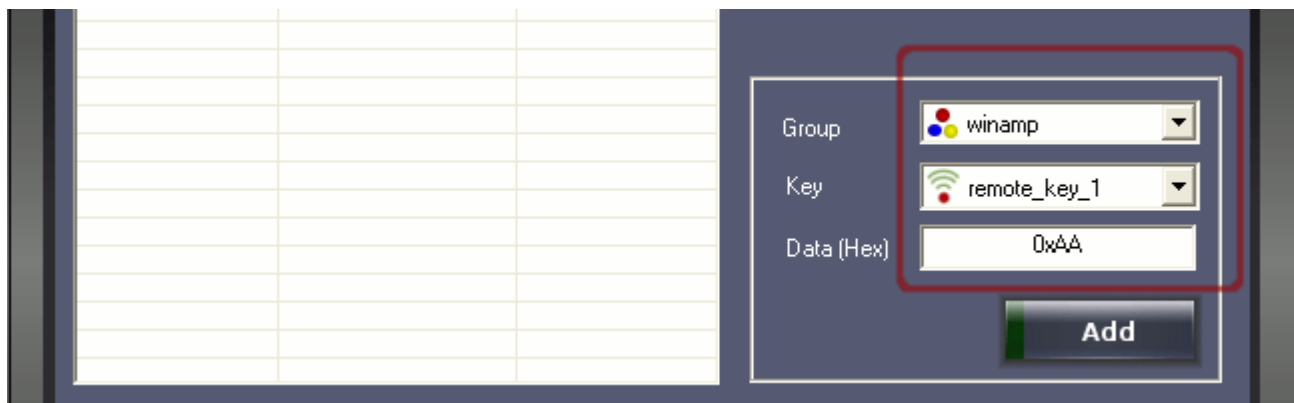
below)
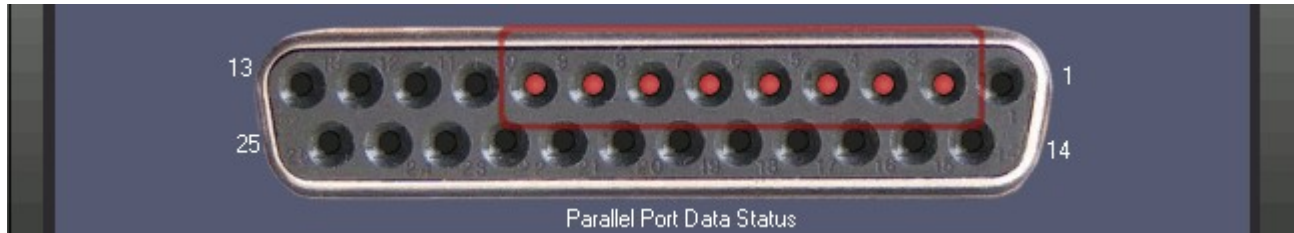
### b) Specify Group, Entry and Data

Parallel-port data is associated per-group per-key. This means whenever the group is Active and remote-key is pressed, associated data will be sent on parallel port. Data on the parallel-port will remain till new data is sent or computer is restarted.

For our example let's select group = "winamp", key = "remote_key_1" and data = 0xAA and click Add.

*Please note that data should be entered in hexadecimal format.*

Data gets added to the list as shown below.
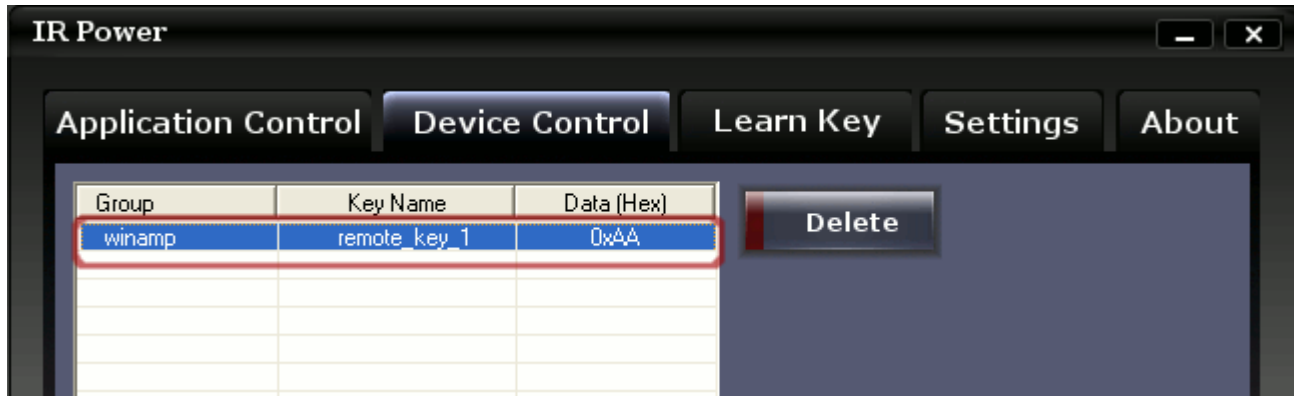
c) Test

To test parallel-port data simply press "remote_key_1" button on your remote.

Note that parallel-port-status changes to from "11111111" to "10101010" which is 0xAA (hex) and status-bar is also shows Port-Data = 0xAA.

User might have observed that a single remote-key press is performing two operations, launching winamp and sending data on parallel port. "Application Control "and "Device Control" are two separate features and can be used independently, but user may combine them as we did.
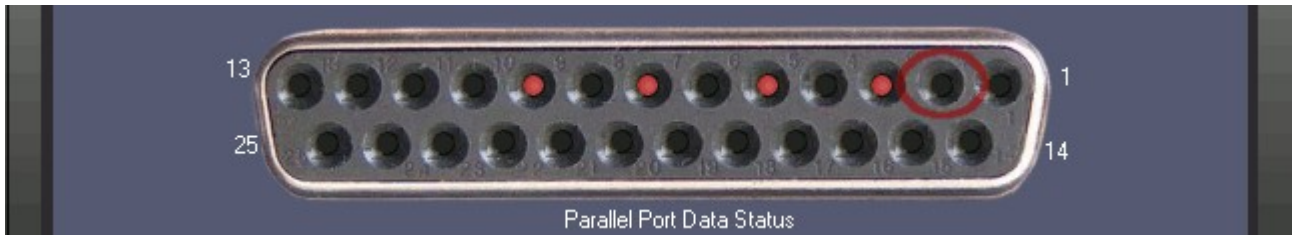

SIGMATONE
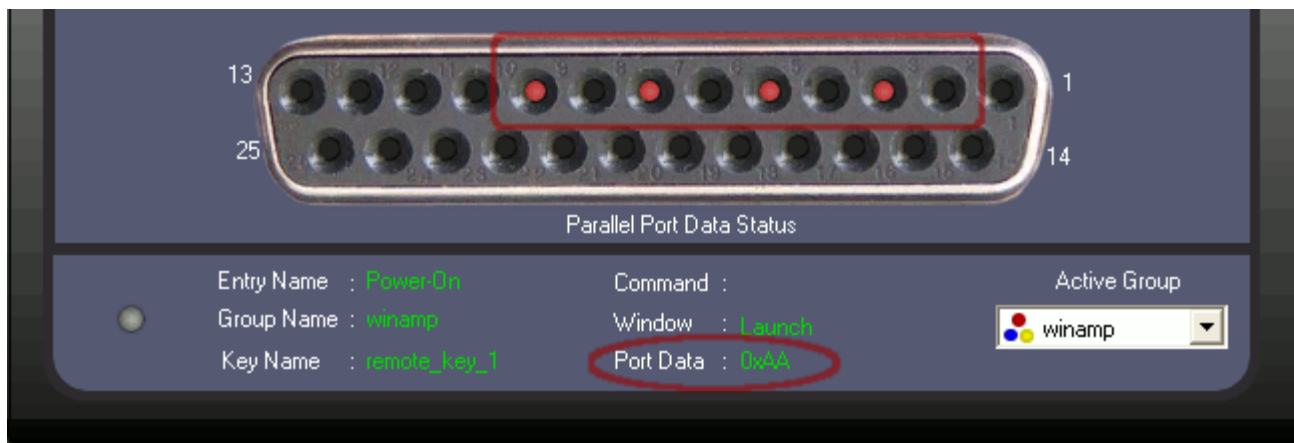
8.2 Changing Port-Data Manually

This feature enables user to toggle any output data-bit on parallel-port manually. This feature is useful when user wants to control external equipment/devices manually without remote.

To toggle any bit simple click on the parallel-port-status pin, let's toggle pin-2.
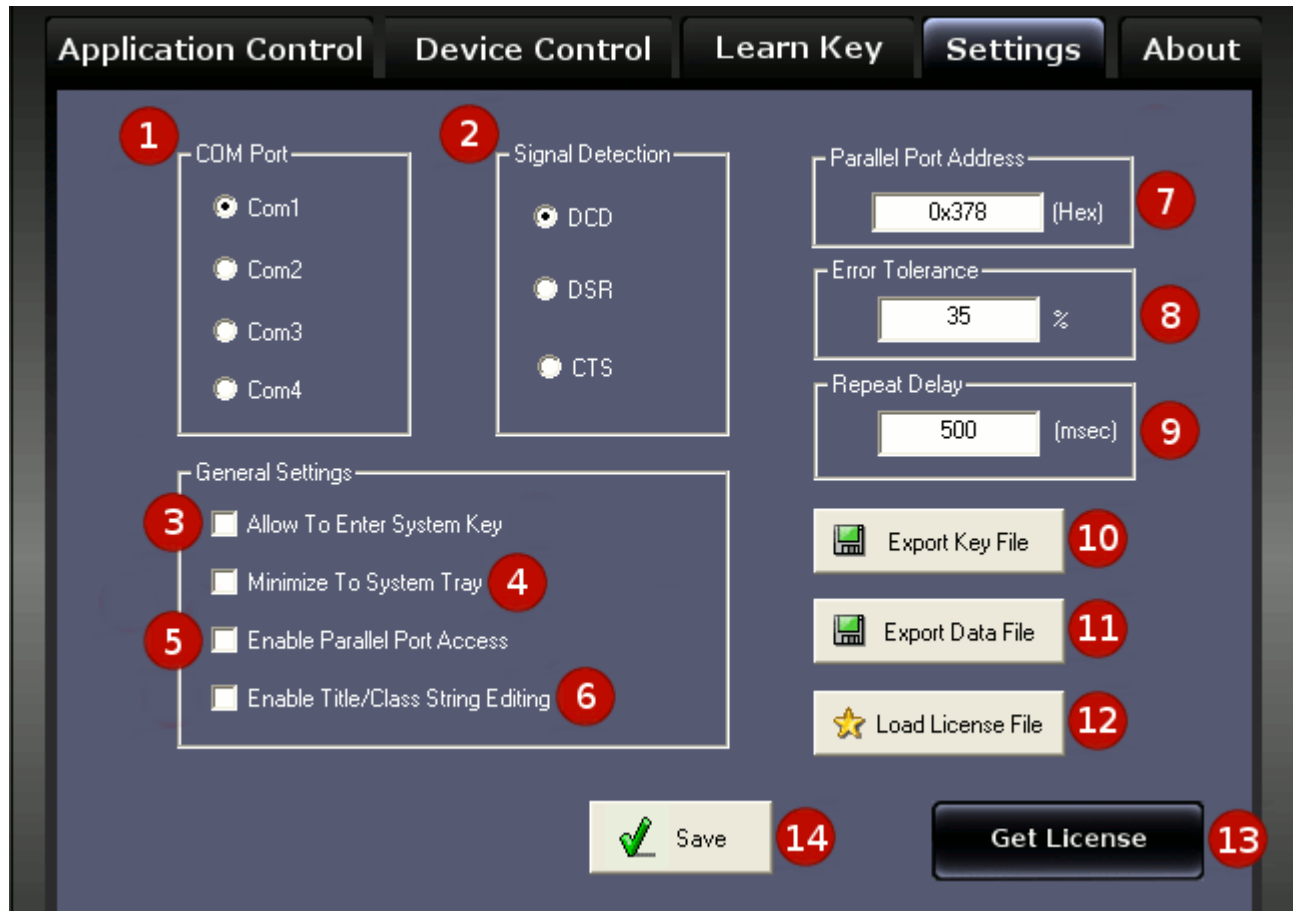
Before click (shown below)

After click (shown below)

Please note that parallel-port access should be enabled from the settings tab to use this feature.

9 Settings

1) **COM Port**

You can select which COM/Serial port to use for infrared communication. Please make sure that infrared-receiver is connected to selected port.

2) **Signal Detection**

Specifies which pin on the COM port is being used for data reception. This is not consistent among receivers hence make sure you make proper selection. Generally home grown receivers use DCD.

3) **Allow To Enter System Key**

Windows OS doesn't pass system-commands like "Win + R" to the applications. Hence normally it is not possible to add an entry which has system-commands as keyboard-commands. In such scenario this feature can be enabled to use some of the system-commands. This selection is self-clearing; it automatically gets un-checked after entry is added (you need enable this again if you want to add another entry with system-key).

4) Minimize To System Tray

When this feature is enabled, "IR Power" will minimize to the system-tray and won't appear in the task-bar when minimized. While in the system-tray "IR Power" will work normally and will respond all your remote-keys. "IR Power" can be restored back from system-tray by a right-click on system-tray icon and selecting "Show IR Power".

5) Enable Parallel Port Access

By default access to parallel port is disabled. Check this if you want to use "Device Control". Don't enable this feature if your computer doesn't have a parallel-port.

6) Enable Title/Class String Editing

By default Title/Class fields in the "Target Window Settings" window is read-only. User can make those fields editable and change them manually before adding an entry.

7) Parallel Port Address

Your parallel port address can be configured here. Default value of 0x378h works for most of the computers. **Wrong address my result "IR Power" to stop responding.**

8) Error Tolerance

Samples received from your remote may not match exactly every time with the learned value, hence some difference is expected. The "Error Tolerance" percentage is used by "IR Power" while key reorganization. If user observes that

"IR Power" key detection is inconsistent then he may increase the tolerance. Value from 20 to 45 can be tried.
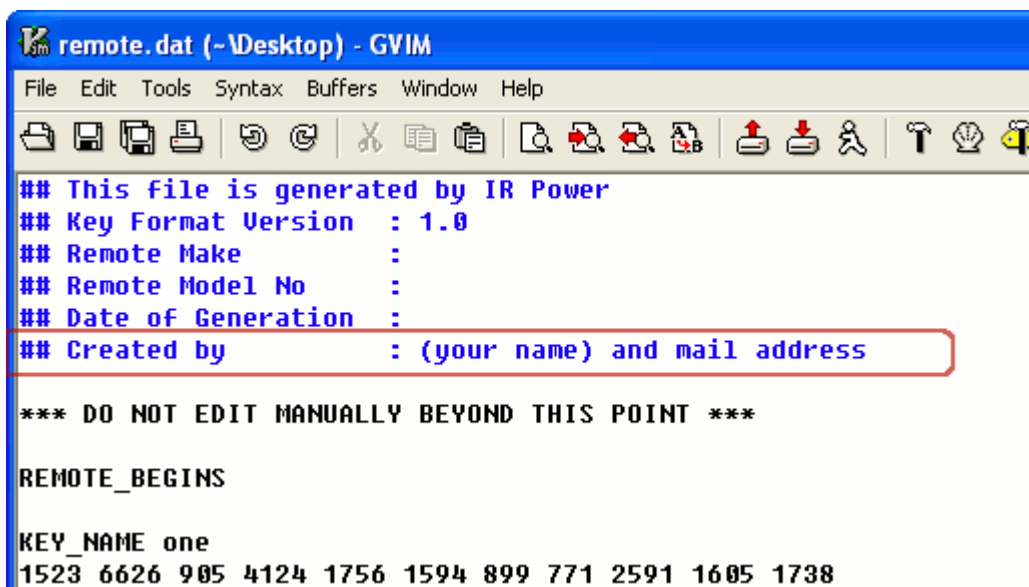
9) Repeat Delay

A silent-window is inserted after processing of every *entry* which has "ERD" (enable repeat delay) set.

Silent-window time period is specified here. During this silent-window all received samples are flushed. "Repeat Delay" value is global and effects both new and old entries. "Repeat Delay" is specified in milliseconds.

10) Export Key File

User can save all the learned keys to a file. This file can be later loaded using "Load From File" button in "Learn Key" panel. You can also share this with all your friends who are using same remote control. You can submit this file to "Innovative Logics" website in the "submit remote file" section for other people to use.

You may also edit header section with your name and mailing address, may be some one would like to thank you for providing the remote file. File exported is text file editable in any text editor like notepad, gvim etc.

11) Export Data File

Data file is a binary file which stores your groups, entries, keyboard-command and port-data. User can export and save their data files to share or use them later. To load data file simply place your save file in "IR Power" installation folder. The file name should be IRPower.bin. **This is a binary file.**

12) Load License File

When you purchase license you receive IRPower.lic file. User should keep this file in some safe location and use "Load License File" to browse and point "IR Power" to the license file. License file needs to be loaded only once, after that "IR Power" remembers the license path for future accesses.
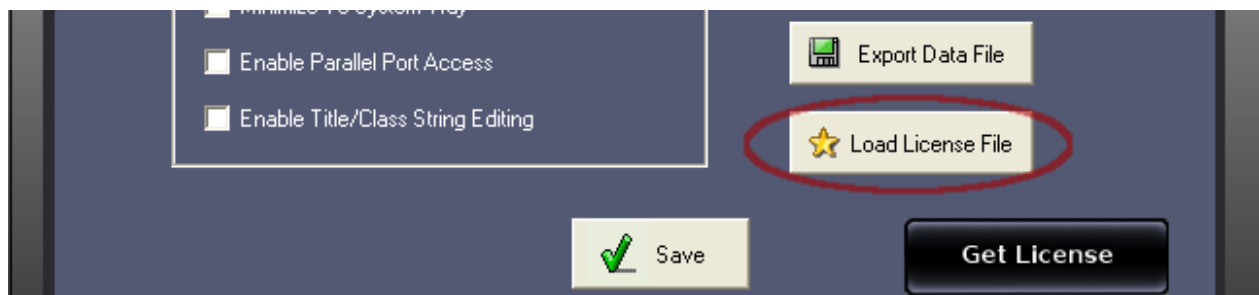
After pointing license file path click "Save", "IR Power" will ask user to restart the application. Please do restart and check your registration information in the about box (as shown below).

13) Get License

This button takes user directly to the license purchase page. User can safely purchase license form there.

14) Save

Use "Save" to apply your changes. Some changes may ask user to restart the application, please do restart "IR Power" by exiting and launching it again.