# Power Racer



# INSTRUCTION BOOKLET

# Table of Contents

# Basic Controls



| Key | Action |
|---|---|
| W or UpArrow | Accelerate |
| S or DownArrow | Reverse |
| A or LeftArrow | Turn Counterclockwise |
| D or RightArrow | Turn Clockwise |
| V or Space | Use Power up |
| Minus or O | Zoom Out |
| Plus or P | Zoom In |
| 1-5 | Reposition Window |

1: Top-Left, 2: Top-Right, 3: Bottom-Left, 4: Bottom-Right, 5: Center.

| Key | Action |
|---|---|
| F | Fullscreen |
| T | Toggle Player Names |
| M | Toggle Music |
| C | Take Screenshot |

Screenshots are saved to the working directory.

| Key | Action |
|---|---|
| X | Return to Lobby |

After the game ends or if the game is closed prematurely.

# Available Cars

### Racer
Speed:          Average
Handling:       Average
Strengths:      Good allrounder, fits every track.
Weaknesses:     Can easily be overtaken by faster cars on straights.

### Pacer
Speed:          Fast
Handling:       Poor
Strengths:      Still a good allrounder, faster speed than racer.
Weaknesses:     Can't take corners as tight as racer.

### Dragster
Speed:          Very Fast
Handling:       Very Poor
Strengths:      Unbeatable on straights.
Weaknesses:     Horrible for sharp turns.

### Speedster
Speed:          Fast
Handling:       Too Much
Strengths:      Fast and good for corners and tight curves.
Weaknesses:     Too much handling can lead to turning too far.

### Tractor
Speed:          Poor
Handling:       Good
Strengths:      Slow and steady wins the race.
Weaknesses:     Proverbs aren't always true…

# Before Racing

## Installation

For instructions on installation and staring a client/server, see the included README.txt

## The Server Lobby



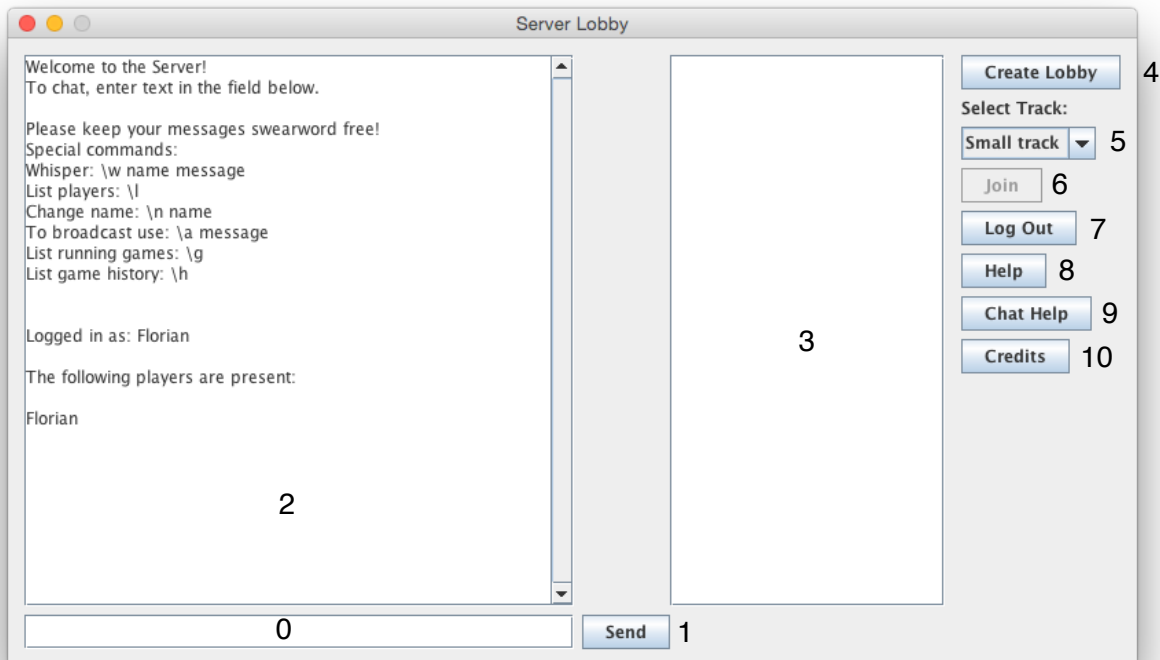The server lobby is the open lobby that you will be automatically placed in when joining a server. All non whispered chat messages sent from this screen via the chat box (0) will be broadcast to all players on the server and displayed on the chat display (2). Here you can create and join game lobbies.

**Chatting**

To chat, enter text in the chat box (0) and press enter or click the send button (1).

**Creating a Game Lobby**

To create a game lobby, choose a track from the track selection drop down menu (5). Then, clicking the "Create Lobby" button (4) will create a new game lobby with the selected Track. You will automatically join the newly created lobby.

**Joining a Game Lobby**

To join a game lobby, select the desired lobby in the lobby selection box (3). Next click the now available "Join" button (6).
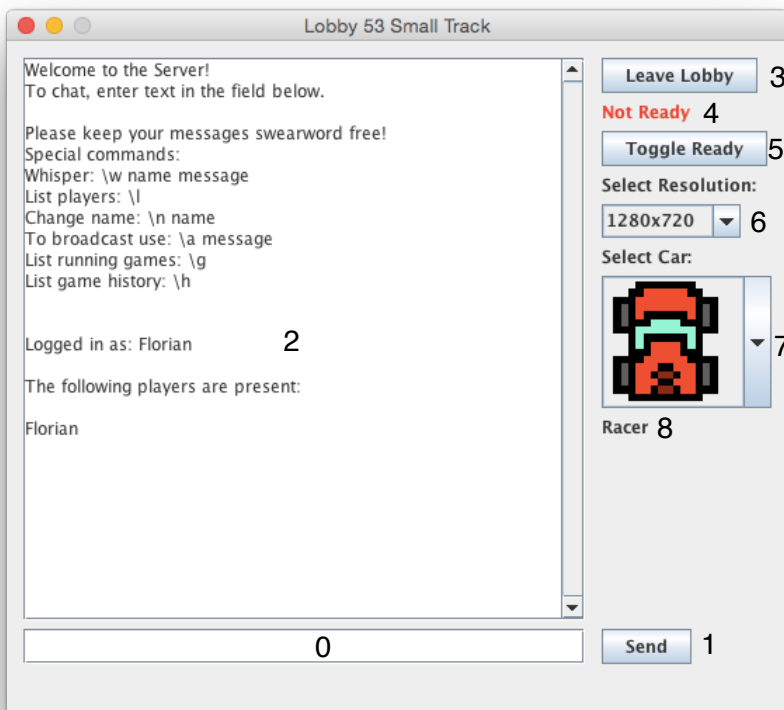
**Help Buttons**

In the server lobby screen, there are two help menus, the game help (8), which displays the keyboard controls of the game and the chat help (9), which displays the special chat commands that are also displayed on the chat display (2) after joining a server.

**Leaving a Server**

To leave a server, click the "Log Out" button (7).

# The Game Lobby

The game lobby is a lobby with a maximum capacity of 4 players. In this lobby players can chat via the lobby chat, which is specific to each lobby, and cannot be seen by players outside the lobby, or in a different lobby.

**Chatting**

Chatting in the game lobby works the same way as in the server lobby, with the exception that all messages are sent exclusively to players in this lobby by default. To send a message to all players, like in the server lobby, type "\a" followed by a blank space and your message. Further chat commands can be found in the chat help menu in the server lobby, or when scrolling to the very top of the chat display (2).

**Selecting a Car**

To select a car, choose from one of the images in the car selection drop down menu (7). The name of the currently selected car will be displayed below the car selection menu (8). To learn about the strengths and weaknesses of each car type, refer to the "Available Cars" section of this instruction booklet. You cannot change your car selection while in the "Ready" state.

**Changing the Game Resolution**

To change the game resolution, choose a suitable resolution from the resolution selection drop down menu (6). Although you can still change your resolution selection while in the "Ready" state, it is strongly advised to do this before entering the "Ready" state, as when ready, the game can start at any moment.

**Starting the game**

The game begins, when the lobby is full (contains 4 players) and all four players are ready. Players can toggle between the "Ready" and "Not Ready" states via the "Toggle Ready" button (5). Your current state is displayed above the "Toggle Ready" button (4).

**Leaving the Lobby**

If you wish to leave the lobby, because the game has just ended or other reasons, click on the "Leave Lobby" button (3). It is advised that, if you plan to leave the lobby, you set your state to "Not Ready", as otherwise the game might start unexpectedly, before you are able to click the "Leave Lobby" button.

# Power ups

Power ups are items which can be obtained by touching a power up sphere with your car. When activated, power ups aid you in overtaking your rival racers, either by speeding you up, or slowing you down. Power ups can be used in various situations, with greater or lesser effect. This means that often, it is better to hang on to a power up and use it in an opportune moment to maximise its usefulness.

### Boost

The boost is a very basic power up. In comparison to most other power ups, it is very easy to use as it's applicability is only dependent on your own position and rotation. It quickly accelerates your car to high velocities and can give you a quick start up after colliding with an object.

The boost is most effectively used on straight stretches, to quickly cross a section of high friction ground or after colliding with an object.

### Rocket

The rocket power up is used to slow down your rival racers and can give you a good opportunity to overtake them. It spawns five rocket objects (right image) fanning out in front of your car, which will stop opponent cars during a collision.

The rocket is most effectively used when driving closely behind a rival racer.

### Oil Slick

The oil slick is a passive-aggressive power up which, if used effectively, can not only become a difficult obstacle to overcome for your rival racers, but also for yourself. It spawns one oil slick object (right image) right behind your car.

The oil slick is used most effectively when being trailed by an opponent who might potentially possess a rocket power up, or at sharp turns and corners, where dodging it leads to major detours.

### Lightning

The lightning power up is a guaranteed hit. It zaps all rival racers and reduces their velocities by half. This means it's effectiveness is only determined by your opponents positions and velocities.

The lightning is most effectively used when a rival racer has just used a boost power up, or is attempting to cross a section of high friction ground.

### Inversion

The inversion power up's use lies entirely in the elements of surprise and confusion. It causes all rival racers to have their controls reversed, meaning if they attempt turn right, they'll turn left and so forth. This can be a great hindrance for an unsuspecting player, seasoned veterans however, might hardly be affected by this.

The inversion is used most effectively when rival racers are performing turns or have just used boosts, as this will cause them most confusion.

# Tracks

Power Racer includes a total of four preset tracks and a highly advanced random track generator, leading to a plethora of playable tracks. Each one of the preset tracks has a specific theme, by being set in a different location, while the randomly generated tracks aim towards recreating the adventurous feeling of discovering an entirely new track for yourself.

## Small Track
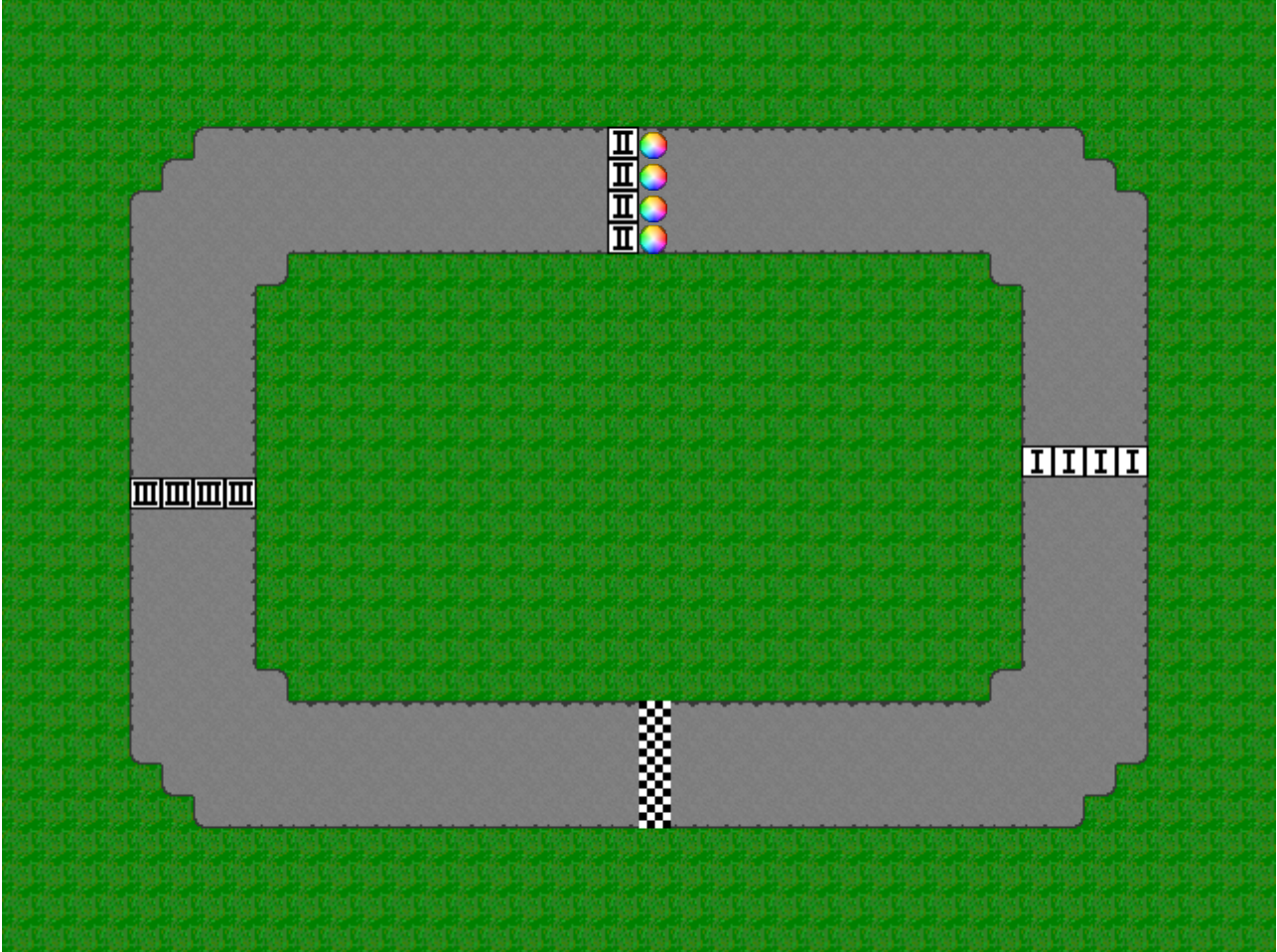


The small track is a small standard racetrack set in the grassy rolling hills of mountain meadows. It is composed of four short straights and four left corners. With all three checkpoints and the finish line in the centre of each straight, cutting corners is entirely a possibility, especially when driving a car with poor handling. When driving cars with good handling, however, most drivers will find that cutting corners without a boost is a bad idea.

This track only has two different types of friction on its surfaces. The asphalt has low friction, while the grass has medium friction. Driving off road for a while will decrease speed, but returning to the road should lead to a swift recovery.

## Grass Track
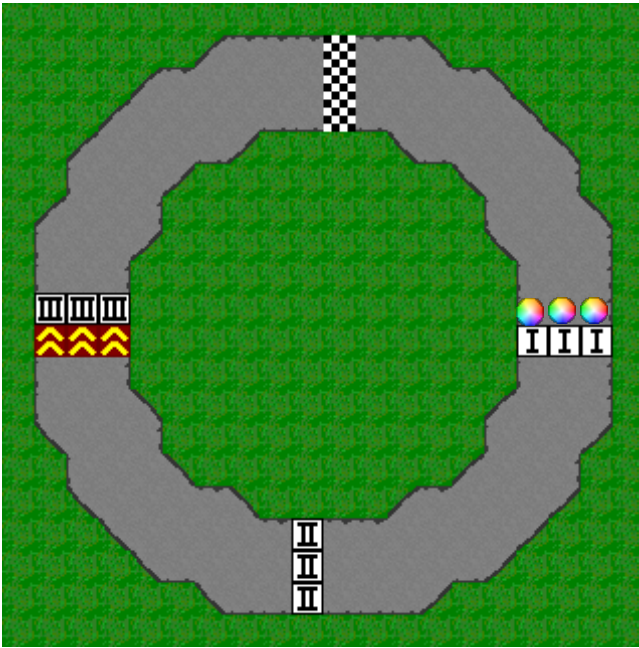


The grass track is a very small track with about the same theming as the small track, while ironically, being quite a lot smaller. In comparison to the small track, which has four straights and four corners, the grass track has no distinguishable corners and is effectively a circular track. Since there are no sharp turns, using a car with a high top speed and low handling is not a bad choice, although fast cars might have to break once in a while, not to spin out of the circle.

The specific feature of this track are the boost panels in its west section. These panels amplify the speed of a car driving over it. This means that the greater the speed of the car, the more it will be sped up. This, again, might cause fast driving, badly handling cars to have to slow down and steer back onto the track.

Cutting corners on this track is effectively impossible, as its circular nature makes the path from checkpoint to checkpoint a straight shot on road.

## Random Track

Since the random track is highly randomised, it is very difficult to predict anything concrete about it. Same as the small and grass tracks, this track takes place in a grassy surrounding, making the track relatively forgiving when it comes to driving off road for a short while. Most commonly the random track has many 90 degree turns and is composed of many simple track pieces, to make up a very complex track. To ensure excitement at every turn, the random track usually has many item spheres.

Since the random track usually features more turns than checkpoints, and turns tend to be very close together, skipping entire sections of the track because there is no checkpoint in it is a good way to get ahead of your rival racers. However, since the track is randomised, this is hard to predict and might only be viable during the second lap and onward.

# Sand Track
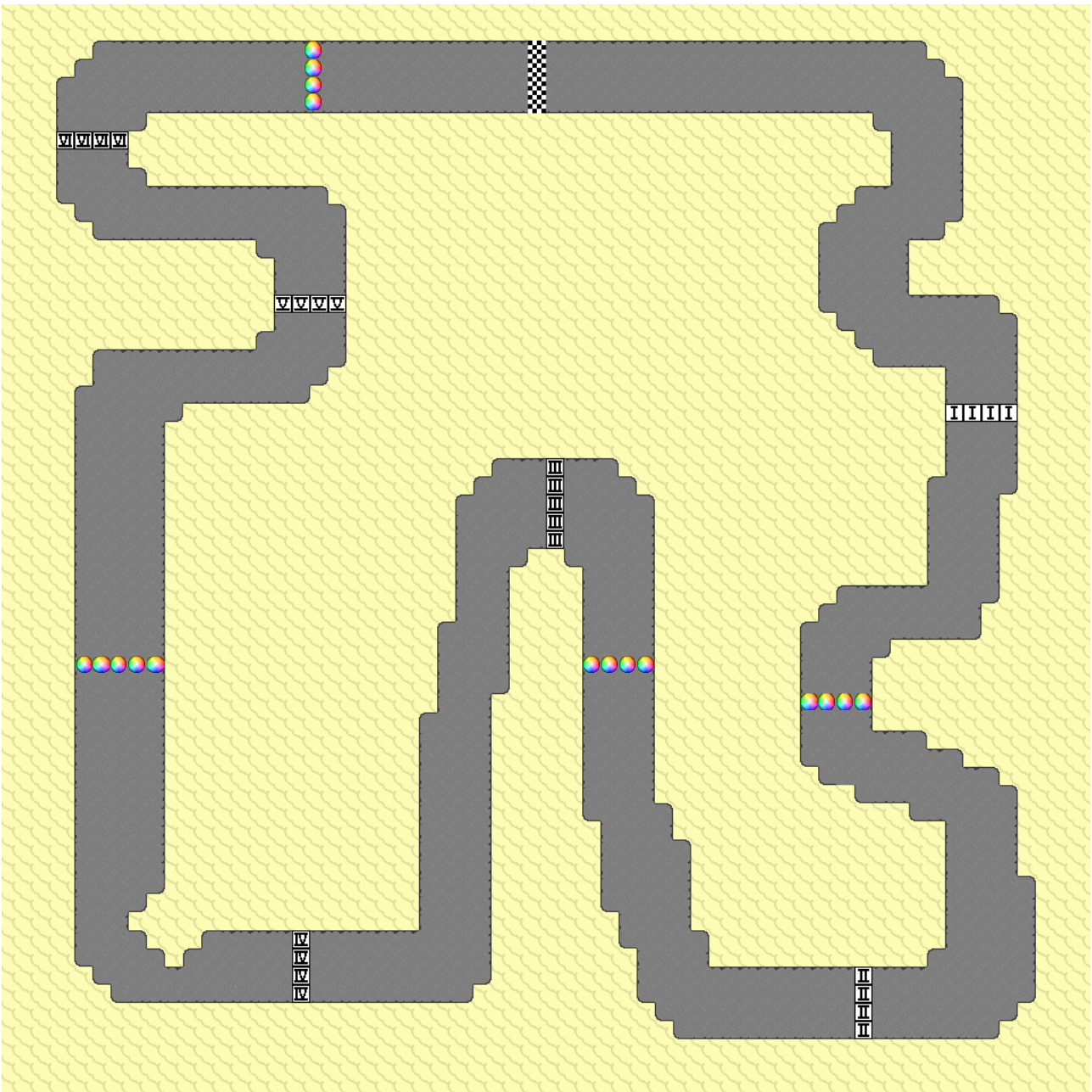


       The sand track is desert themed and takes place between dusty dunes and under the glaring sun. The wind sweeps harshly over the dunes and therefore, the track has a lot of fuzzy edges where the sand has begun to cover the asphalt. The track features several sharp turns, but also long straights, meaning, both using a fast driving, slow turning car and using a slow driving, fast turning car has its merits.

       The frictions on this track are the low friction of the asphalt and the high friction of the sand. Driving off road on this track is, in most situations, not a wise thing to do, especially because most checkpoints are in corners and turns. Sometimes, however, a risky boost through the sand can save a lot of time and may help you get in first position.

# Ice Track
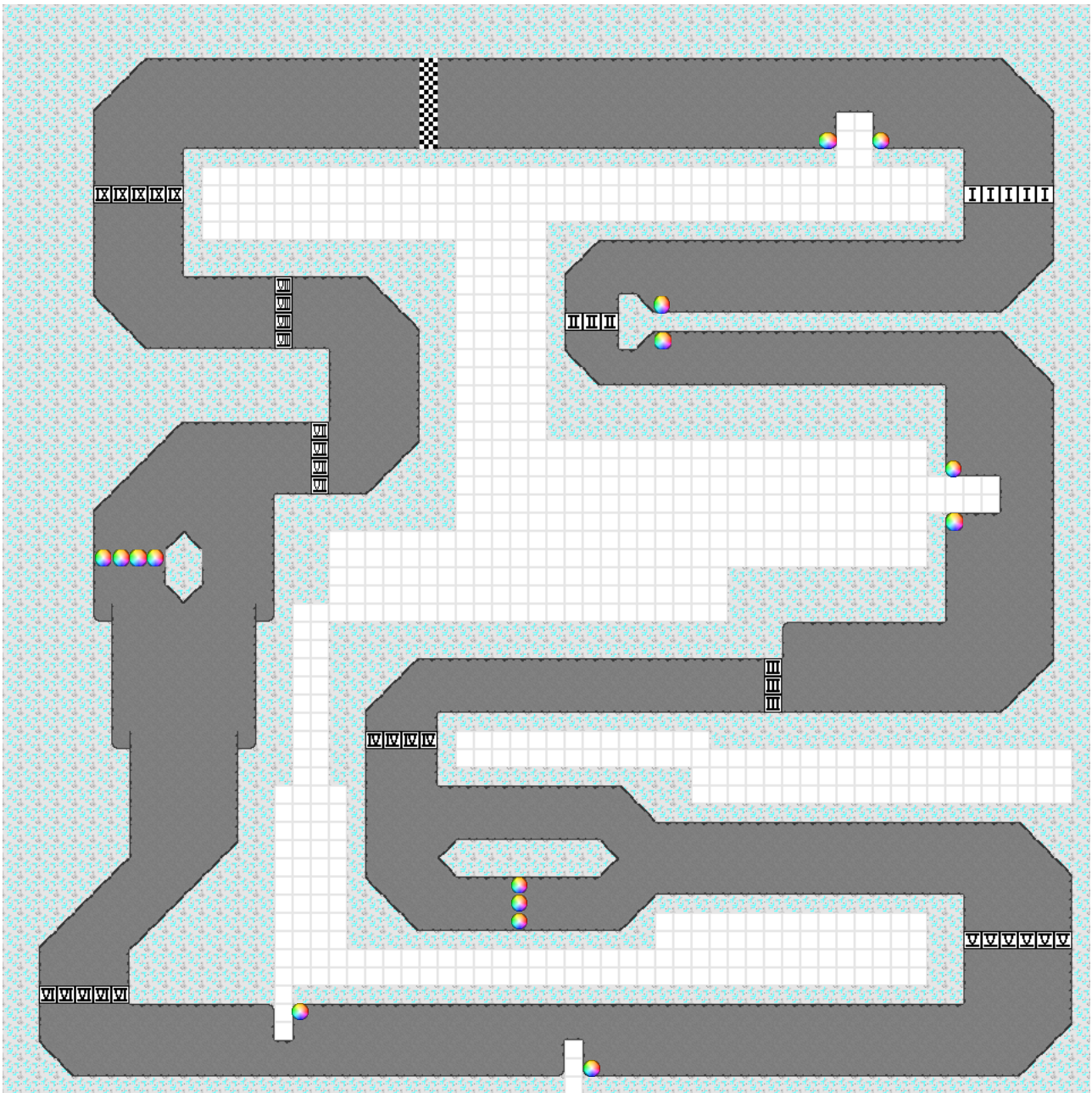


      The ice track is set in frigid and cold mountains, and hence the track contains ice, rock and snow as terrain. All of this terrain has very high friction, so going off road is not advisable. This track has some very sharp turns and a few straights, just like the sand track, however the main feature of this track is its optional pathways. Power ups on this track are scarce and in hard to reach locations, but sometimes taking the longer route to get a good item can give you an edge over your rival racers.

# How to Race

## The Interface



After all players in a lobby have entered the "Ready" state, the game window will open. In this window, two things will be displayed, one being the actual game consisting of the cars, the track and the in game objects, and the other being the HUD or heads up display, which displays relevant information, which does not move with the track.

**The HUD (Heads Up Display)**

In Power Racer, the HUD is kept quite simple, as to not distract from the action of the game too much, but it displays some information that is key to being able to correctly play this game.

When the game starts, a timer will count down from three at the centre of the screen (marked blue). When the word "GO!" is displayed, the game begins.

The current number of passed checkpoints and completed laps is displayed in the top left corner of the game window (marked red) as "current/maximum". The checkpoints are labeled with their number in roman numerals, so it is easy to see which checkpoint is the next one that should be passed.

The currently held power up is displayed in the top right corner of the game window (marked green). If a question mark is displayed, then you aren't currently in the possession of a power up.

**The Game**

The game part of the interface is very self explanatory. Your car is the car at the centre of the screen. If you have player name tags activated, your car is also the only car without a name tag above it.

At the beginning of a game, all cars are always facing east towards the finish line. This way you can always be sure where the front of your car is, even when you have difficulties distinguishing your car's features.

Checkpoints are numbered with roman numerals. You will always be heading for the checkpoint with the number of checkpoints you have passed plus one, or the finish line. Staying on the road during the race helps to be sure not to have missed any checkpoints since checkpoints are always on the road in correct order.

# The Race

When the game window opens, you will not have control over your car until the countdown has finished. This ensures that all players have enough time to realise the game has started and get ready.

When the countdown ends, your goal is to pass all available checkpoints on the track, in order and then return to the finish line, until you have completed the required number of laps. Since laps and checkpoints are displayed in the fashion of "current/maximum", once your current number of checkpoints equals the maximum number of checkpoints on the track, your next goal is the finish line to complete the lap. You have finished the race once your current number of laps is equal to the maximum number of laps on the track, meaning the last lap is the one where your current number of laps is one less than the maximum number of laps on this track. The tracks are laid out so that following the road should let you easily complete this objective.

Passing a checkpoint will trigger a green signal around your car. This way you can tell wether you have passed a checkpoint or not without looking at the counter in the top left. A checkpoint will only count as passed if the driver (sitting in the centre of the car) crosses over it, so make sure you pass over checkpoints with the centre of your car.

After completing the require number of laps, you will lose control over your car and a bot will take over for you, so that players who have not yet finished do not feel left out.

The challenge of the game comes into play when you try, by means of shortcuts and clever use of power ups, to beat all of your rival racers to the finish line.

# Endgame

Games can end in two ways, either all players finish the last lap of the race, or a player drops out. In either scenario, the players still in the game can return to the game lobby via a clearly displayed button press. If the game was completed through the former way, the game will display each players race time, with the fastest player being displayed at the top of the list. This information is recorded by the server and can be requested via a chat command in any of the server's lobbies.

# Pro Tips

You cannot turn if your car isn't moving. While in motion your car can turn by a constant amount per second, so driving slower allows you to steer more accurately.

When driving a fast car, slowing down before tight turns can mean not going off road and retaining more speed.

Using a power up immediately after picking it up is rarely a wise choice, waiting for the opportune moment is of the essence.

If you still have a power up when approaching a power up sphere, unless you are saving it for a specific moment, using it is usually advised.

# Hosting a Server
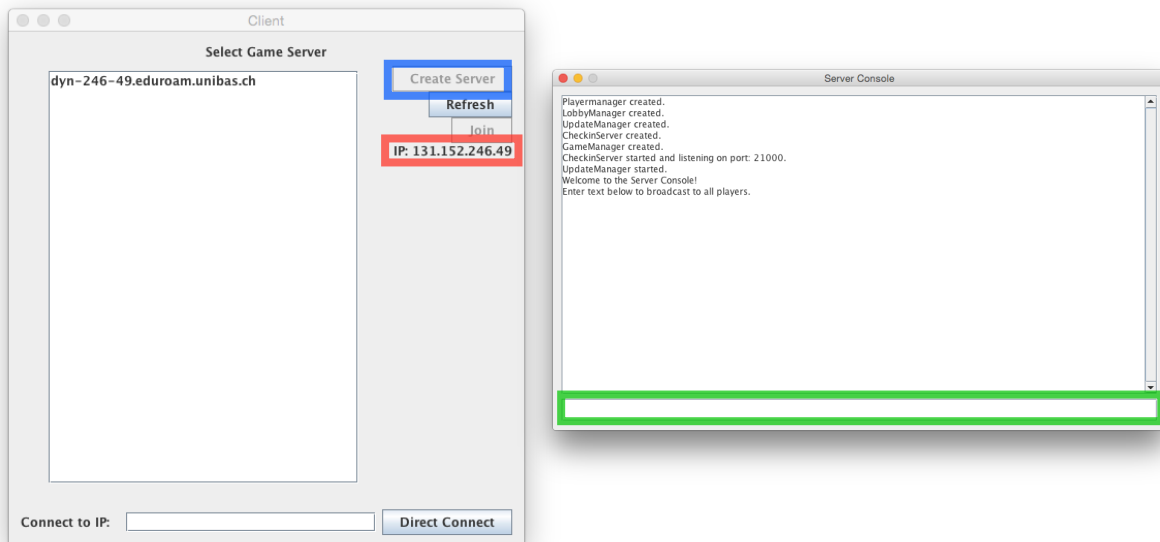


## Starting a Server

For detailed instructions on how to start a server, please consult the included README.txt. To quickly start a server, double click the game's jar file and click the "Create Server" button (marked blue). After having created a server, the server console will open a new window and your IP address will be displayed (marked red). In case your chosen network does not allow UDP broadcasts, tell players to use the displayed IP address to directly connect instead.

## Managing the Server

The server console is used to monitor server activity without having to connect to the server as a player. Here messages are displayed which can exclusively be seen by the server.

Entering text not starting with "\k" in the server console (marked green) will send the entered text as a server broadcast to all players. This is important if you want to tell your players something like "Server closing in 5 minutes".

By entering "\k:playerName:kickMessage", you can kick the player with the according name and send him the selected message, which is not allowed to contain ":". The selected message will be displayed to the kicked player after he has been removed from the server and should be used to tell them why they were kicked.