

Litego's Ultimate Shooter Guide

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1. Introduction

After 20 years of casual/hardcore FPS gaming and some competitive gaming in FireFall (Before they pulled PvP from the game and killed it) for the team Fanservice, I've picked up a couple tips and tricks, and I plan to share some of that with you guys here today. But I warn you, it's quite the wall of text, so feel free to jump to the topics you're interested in. And if you feel there's something missing, or there's wrong information in the guide, send me a message and I'll look into it.

There is nothing quite as important in FPS (First Person Shooter) games as good settings, equipment, proper training and technique. Having bad settings can really fuck up your game just as much as bad technique. Not only is it important to have good settings, but also consistent settings spanning over different games, over several years.

After going through this guide you'll probably think to yourself that you're doing just fine with what you're using today, or that you changed it and you were performing worse. While some of the things I talk about are subjective, most of it is objective, and if you're not using these settings you should change it if you care about your performance in the long run. Some things might not feel great at first, but will improve you over time.

This guide applies to every FPS game out there, though it was written partially for Dirty Bomb, and I will point out Dirty Bomb specifics where I can. Most of the Dirty Bomb specific information also applies to most Unreal Engine games. Comparisons to other game engines such as Source will sometimes also be made.

2. Mouse Settings

2a. DPI/CPI

DPI (Dots Per Inch) and CPI (Counts Per Inch) are exactly the same thing. Some companies prefer to use one over the other. Personally I think CPI is the most accurate description of what's being measured. And what's being measured is how often the mouse sensor detects movement over the span of 1 inch (2.56 cm) in a straight line.

Your CPI should be chosen based on your monitors resolution and your sensitivity. With a high resolution monitor the smallest move of the crosshair shrinks due to the higher pixel density (DPI) of the display. To compensate for that higher DPI you should increase your CPI in order to still have a pixel perfect tracking. With a high sensitivity (cm/360) you'll also want to increase the CPI to compensate for the decreased mouse movement required to turn in-game. Here are some example gifs of a single count and how it translate to movement in-game at 1080p:

8.67 cm/360:

400 DPI

48 In-game Sensitivity



800 DPI

24 In-game Sensitivity



1600 DPI
12 In-game Sensitivity



52.02 cm/360

400 DPI
8 In-game Sensitivity



800 DPI
4 In-game Sensitivity



1600 DPI
2 In-game Sensitivity



As you can see, with a 1080p monitor and a 8.67 cm/360 the pixel skipping is very high at both 400 and 800 CPI. At 1600 it's within an acceptable range. But if I were to play at such a high sensitivity I would still probably up it to 3200.

At a 52.02 cm/360, 400 CPI is acceptable. When we look at 800 vs 1600 it looks like we're hitting diminishing returns, and the difference is negligible. Even so I'd still go for 400 CPI here, and I'll explain why later.

Most companies will have you believe that more CPI is better. This is false, very false. The problem with high CPI is that your mouse will start doing some random shit you actually don't want to deal with. It'll report minor movement easier, but it will measure those moves less accurate and you'll get unwanted side effects such as:

- *Pixel Skipping: When your crosshair or mouse moves more than 1 pixel at a time.*
- *Angle Error: When your crosshair moves to a different pixel than it should have.*
- *Jitter: When you move the mouse in a straight line, the crosshair will oscillate above and below that line in a sinus curve, this curve can be of high or low frequencies.*

- *Malfunctions: When you move your mouse fast, it'll register some random move which can make you do like a 720 and then look up at the sky or down at the ground.*

There is a reason most pro players use 400-800 CPI, these are accurate enough. Just think about it, try to divide a 1 inch long line into 400, that's pretty fucking accurate already! And in my experience most mice start failing at around 3000 DPI, though obviously this changes with time as sensors get better, and it also depends on your polling rate.

CPI is also directly related to sensitivity. 800 CPI is twice as sensitive as 400 DPI. You'll easily notice this on your desktop when changing between the two. So 800 CPI with an in-game sensitivity of 10 is the same as 400 CPI with an in-game sensitivity of 20.

Most mouse sensor have a native CPI, this is the value at which the mouse is most precise at. Anything other than this is just the mouse interpolating and predicting your movement by adding/removing input. If you want to use a different CPI than the mouse's native one, I recommend using double/half values. So if the native DPI is 800, recommended is 200, 400, 1600, 3200. 700 for example is not advisable (unless of course the mouse's native DPI is equal, double or half of that).

Lastly we need to look at engine restrictions. Unreal Engine 3 for example does not deal well with low sensitivity. Normally when running around and hip firing I don't think you'll be affected, but if you pick up a sniper rifle and scope in and try to do minor movements, they will simply be ignored by the engine. Because the mouse input values are so low, the engine will round them down to 0 and not move at all. This problem starts being a thing at around 5 in-game sensitivity. So whatever you do, stay above 5. I do not know of any other engines that have this issue, but UE3 is extremely popular, and all games in it suffer from this.

2b. Polling Rate

Polling rate is the frequency at which the mouse reports movement back to the computer. This is measured in Hz (Hertz), reports per second. PS/2 connectors back in the day did not have a polling rate, instead they used system interrupts which takes priority and ran at a default rate of 100 Hz and could be clocked to 200 Hz. Then came USB with its CPU polling which by default reports at 250 Hz. Gaming mice today usually report at 500-1000 Hz.

Polling rate also directly relates to mouse latency. At 1000 Hz there'll be a 1 ms latency added to the total. At 500 Hz, 2 ms. 250 Hz 4 ms. 125 Hz, 8 ms. Etc.. We'll be talking more about the total latency later in this guide.

Ideally you should be using 500 Hz or 1000 Hz depending on your mouse and DPI. If you for some reason want to push your DPI higher, you can go down on polling rate to avoid the mouse spazzing out. It's not like you can feel that 1 ms difference anyway.

2c. Smoothing

Mouse smoothing is handled different depending on the engine, but it's always bad! In Dirty Bomb it is turned off by default, so feel free to skip this section.

What smoothing does is that after you've stopped moving your mouse, it'll keep moving the crosshair/mouse for a few frames to make it look more fluent. Problem is that this makes your movement less accurate, and it adds latency.

Unreal Engine is the worst offender when it comes to mouse smoothing, because it will tie your sensitivity to your frame rate. Meaning that when you get frame drops you'll suddenly have double sensitivity and fuck your aim. Mouse Smoothing is on by default in Unreal Engine, and therefore most Unreal Engine games. If the game does not have an option to turn it off, you can force it off by changing the value "bMouseSmoothing = true" to false in "%user%\Documents\My Games\%Game%\Input.ini".

2d. Acceleration

I'd say acceleration is bad for FPS games, however there are certain pro players that use this (Especially in games like Quake, not so much in CS), so clearly it works for some people.

Problem with it is that it takes a lot more time to get used. Getting good aim is about muscle memory, knowing that when you move the mouse a certain amount in real life, it should translate to a certain amount of rotation in-game. Without acceleration it's quite easy, you move the mouse this far you rotate the same amount in-game every single time, regardless of how fast you do it. But with acceleration you need to teach yourself that same rotation with different speeds, as the distance will change.

Acceleration is also off by default in Dirty Bomb and Unreal Engine (most engines actually). However, you can get acceleration from outside the game. There is a Windows mouse setting called "Enhance Pointer Precision", this is mouse acceleration. it's a nice feature for the touchpad on a laptop. But for a real mouse it's just terrible, and you should turn it off (unless you prefer acceleration). It will affect most games (we'll go into games it doesn't affect later). Mouse drivers and 3rd party software can apply acceleration as well as mouse sensors themselves (worth being aware of when buying new mice).

In some games they allow you to customize your acceleration by changing when the acceleration kicks in and ends, as well as the curve. These values are rarely displayed in a menu and you'll have to change them through console commands or .ini tweaking.

From what I've gathered from people who actually use acceleration, you should stay away from the Enhance Pointer Precision in Windows and use console commands or 3rd party software (no need to ask me as I don't know any) to customize it to your liking. Some mouse manufacturers will offer tweaks through their driver.

2e. Sensitivity

2e-i. In Windows

The first thing I'll go into is your Windows sensitivity, because you might think it doesn't matter, but I'm telling you now, it's very important, and there is only one correct setting.

In Windows you can set your sensitivity between 1 and 11, the correct setting is always 6, in the middle. When you set it lower, Windows will start ignoring mouse

input causing you to lose accuracy. When you set it higher, Windows starts adding input, again causing you to lose accuracy.

Let's say you set it to 5. Now you move it slightly and you see the mouse move one pixel, you move it again, and it moves another, but when you move it a third time, it stays still, and you'll have to move it an extra time for it to react. The lower you go the more often this will happen. It simply ignores your input for a cheap way to lower sensitivity.

Now let's try the other way, you set it to 7. As last time, when you move it the first few times it moves one pixel at a time, now after those previous moves you move it the same distance, but it now moves 2 pixels. The higher you go the more often this will happen. It pixel skips for a cheap way to increase sensitivity.

These ignored/skipped pixels do affect your game as well, so obviously it's important to not lose valuable input or miss a shot because during your fine movement for a long range headshot Windows decided it's time to move 2 pixels instead of 1, or not move at all.

This is also another reason not to go insane on the DPI value, because the mouse becomes way too sensitive. Since you can't change the Windows sensitivity, you gotta learn to deal with the DPI you're using.

2e-ii. In general

In-game the measurement for sensitivity is just an arbitrary number which doesn't mean shit, and it doesn't to other games. So when people ask what your sensitivity is they'll expect an answer like 12 and think it matters, when in reality there's so many factors to that question like DPI, Windows sensitivity, smoothing and acceleration. That's why experienced players will use the metric cm/360 (or inch/360). Which is the distance you have to move your mouse in order to rotate 360 degrees in-game. It's a universal metric that fits all games regardless of your settings.

So what is the optimal sensitivity? Or is there such a thing? Well the answer is no, there's no such thing. However, I would say there's an optimal zone. Generally mid to low sensitivity is where you should be. Now there's no definition on this, but I'd say mid is like 15-30 cm for a 360 and 31+ is low sensitivity. Personally I use 56 cm, and I know some people (often snipers) will go as low as 1+ meter. Some people with acceleration will go even lower, much lower.

Having a high sensitivity is in my opinion just intentionally nerfing yourself. The benefit of a high sensitivity is that you can look around faster at the cost of accuracy. Low sensitivity allows you to be more precise, which means you can fuck up a flick and still be on point because 10 pixels off target with high sens can be 2 mm, while on low sens it can be 2 cm (much bigger margin of error).

The perfect sensitivity also depends on what you do. If you're a sniper you might want a low sensitivity, if you're a CQC shotgun player you might want a high one (By high I still mean medium, but on the high end of medium) and if you're a rifler you might want a medium one.

Even though I strongly discourage doing this, what you can do about this is learn to play with different sensitivities for different roles by using a mouse that has a DPI changer or using console commands or .ini tweaks to change the in-game sensitivity based on which weapon you're using. I would recommend this over acceleration if you feel having a universal sensitivity isn't for you, but I must stress that the best way to go is still having a single universal sensitivity that'll fit all your needs.

2e-iii. Setting your sensitivity

My recommended sensitivity depends on your mouse pad. I'd say you want to be able to do a 360-540 degree turn by swiping your mouse from one end of the pad to the other. Any more than that and you're sacrificing accuracy for being able to turn more than you'll ever need. Any lower and you can't do a quick 180 from the middle of the pad. One way some people like to use to find their sensitivity is to do a test where you try to track a pole or something in-game while moving erratically around. You do this while trying out different sensitivities until you find something you're fairly accurate with. This might have been relevant to me if I didn't set my sensitivity years before I hear about this test. But you can try it and see how you feel about it. Regardless of which sensitivity you choose, it is important that you use that same sensitivity for every game you play, to maintain and strengthen muscle memory.

The first thing I do when setting my sensitivity in any game is checking for acceleration and smoothing by moving the mouse a set distance. First quick, then slow, and make sure I rotate the same amount both times. If I don't there's no reason to start tuning my sensitivity, and I need to disable those as explained earlier in this guide.

For an easy way to set my sensitivity, I go to www.mouse-sensitivity.com and use their distance calculator. Select the game, put in my DPI and CM/360. Then I take that value and put into a .ini file or punch it in through console commands. In-game options menus are rarely accurate enough. And if the game doesn't allow that, and is extremely inaccurate I'll start tweaking the DPI to compensate.

For games not supported by that website I use the old-school method of measuring it by simply finding a corner of a wall, or a pole or something easily memorable in-game. Then I bring out my measuring tape and pull out my wanted cm/360. I position the crosshair in-game at the pole and the mouse at the end of the measuring tape, then I move the mouse the distance of the measuring tape and see how far I rotate in-game. If I move past the pole I adjust my sensitivity down, if I didn't reach the pole I adjust it up. I repeat this process until I hit the pole. Or if you don't wanna bother with the measuring tape, use the distance of your mouse pad, from one end, to the other for a 360 degree turn.

There is a third method, but I don't like it as it's not precise enough. You position the mouse in the middle of the pad and do a flick for a 180 turn. When you feel you can consistently do a fairly perfect 180, you're set.

In Dirty Bomb you can change your sensitivity through the console. Bring it down by pressing ~ (tilde), on English keyboards it's the key to the left of 1. Once you've brought it down, write in "SetSensitivity #" where the # is your value.

2e-iv. Sensitivity scaling

When zooming in with a weapon (Aim Down Sight (ADS), scope in) the sensitivity usually changes. Some people prefer it to be the same as unscoped, others prefer it to scale with FoV (Field of View). I'd say those are the only two good ways of doing it, however some games do use arbitrary values, where they just scale it however they want. This is shit because it doesn't translate well over to other games.

In games that allow you to set the zoom sensitivity yourself, the way you calculate it to scale with FoV is:

Scoped Sensitivity = Current sensitivity / Unscoped FoV * Scoped FoV

In Dirty Bomb there is a setting, and you don't have to calculate anything. If you set it to 0 it scales with FoV, if you set it to 1 it's static. Anything in between is shit.

2f. Raw Input

This is a feature in a lot of games that will cause a 1:1 mouse ratio, meaning it will force off smoothing and acceleration as well as bypassing Windows and driver settings. So if you have Enhanced Pointer Precision on in Windows and a Windows sensitivity of 9, or something similar through your driver or whatever, it will turn it all off, and pull input straight from the mouse, bypassing any manipulation that might normally apply. So if the game has raw input and you're using it (which you should), you can freely use Enhance Pointer Precision and a higher or lower Windows sensitivity than 6.

I do not know if Dirty Bomb has raw input or not, I have not tested it myself. But if you've followed the guide so far you don't actually need it.

2g. MarkC Mouse Fix and other Fixers

People will often recommend you to use MarkC Mouse Fix or other Fixers to get 1:1 mouse sensitivity ratio because otherwise you'll get acceleration. Well this is false and just pure misinformation bread for generations. What these fixers do is remove the acceleration caused by Enhance Pointer Precision. So if you install one of these and turn on Enhance Pointer Precision, you won't be getting any acceleration. So simply by turning that off you'll do the same thing as they do, except you're a 3rd party program lighter.

So why do they exist? Well back when Windows XP was released, Microsoft changed the way it handled mouse input. This caused all games that were developed before XP to now have mouse acceleration (if you were using XP or newer). So 3rd party mouse fixers were developed to counter that acceleration and bring the input back to a 1:1 ratio. So the only reason for you to be using such a fixer is if you're playing an old game that was affected, like CS 1.6. In any newer game (including Dirty Bomb of course) it doesn't do anything.

3. General Settings

3a. Frame Synchronization/Capping

3a-i. VSync

Let me just start off here by saying that VSync is the devil and you should never ever use it if you care about your performance!

VSync synchronizes your frame rate with your monitors refresh rate. This is not the same as capping your FPS (Frames Per Second) at 60 on a 60 Hz monitor. What VSync does is make the graphics card generate a frame, then it puts that frame in a buffer and waits for your monitors next refresh cycle before that frame shows up on the screen and it starts drawing a new frame. This removes tearing but adds latency (a lot of latency), which cause your mouse to feel sluggish.



([https://upload.wikimedia.org/wikipedia/commons/0/03/Tearing_\(simulated\).jpg](https://upload.wikimedia.org/wikipedia/commons/0/03/Tearing_(simulated).jpg))

There are also other forms of VSync. By itself, VSync will only sync to your monitors refresh rate, and halves of that. So as long as you have above 60 FPS on a 60 Hz monitor, it'll sync to 60 FPS. But if you drop to 59 FPS, instead of staying at 59, it'll drop to 30 FPS. if you drop below 30, it goes to 15, etc..

So they developed something called Adaptive VSync. What this does is just turn off VSync if you drop below the required frame rate. So at 60+ FPS you'll be synced to your monitors refresh rate, but if you drop to 59 it'll stop syncing to you monitor and you'll get tear lines until you're back above 60 again.

You also have Triple Buffering which allows the graphics card to start drawing the next frame while the previous one is in the buffer. This will smooth out the frames causing less stutter. However it also adds more latency. Though some people say

the opposite is true, Logically thinking I doubt it, but I haven't tried it cause VSync is the devil!

But if you're wise like me, you disable VSync altogether in the graphics driver. Just be aware that some games are tied to frame rate and will speed up if you do this. In which case I recommend frame rate capping that specific game.

3a-ii. GSync and FreeSync

There are other forms of monitor synchronization such as GSync and FreeSync. They do the same thing as VSync, but on a hardware level, minimizing latency. I can't tell you whether they're good or not as I have no personal experience with this. I can tell you that GSync requires an nVidia graphics card and a GSync verified monitor, while FreeSync requires an AMD graphics card and that's it.

3a-iii. Frame Rate Capping

Without monitor synchronization your graphics card does not put a frame in the buffer, and instead push it out on the screen immediately, causing a tear line to form. This might sound bad, but you'll get a more recent image on screen, and the mouse will be much more responsive. So if you use a frame rate cap because you don't want your graphics card to overheat or something, you'll maintain that responsive input.

However, I would not recommend a frame rate cap of the same as your monitors refresh rate, such as 60 FPS on a 60 Hz monitor. The reason is that if you do so, you'll get a constant tear line in the same place of the monitor all the time. If you instead cap it a frame or more above the refresh rate you'll get a moving tear line which is much more subtle.

Getting a higher frame rate than your monitors refresh rate might sound like wasted energy and heat, but it's actually not. By increasing your FPS from 60 to 120 on a 60 Hz monitor you go from a 16 ms delay on each frame to an 8 ms delay. You won't see more frames, but you'll always get a more recent frame displayed on your screen, hence you reduce latency causing the mouse to feel more responsive. You'll also add more tear lines, but whatever.

Still, it is wise to cap your frame rate because of latency consistency. If you have a frame rate jumping between 60 and 120 FPS you'll have a variable input responsiveness of 8 ms, this can affect your aim.

3b. Frame Rate and Refresh Rate

Frame rate is extremely important! Having a low frame rate is a huge disadvantage. So if you can't run the game at a high frame rate, you need to start turning down graphics settings. If you can't pull it off at low, start looking into tweaking guides that makes your game look like Minecraft.

The reason frame rate is so important is because of latency. Frame rate is directly related to latency. By having a low frame rate you're going to have a much higher input latency

and your mouse will feel sluggish again, just like with VSync. And as I mentioned above, having a higher frame rate than your monitors refresh rate will decrease input latency.

As also mentioned before, having a capped frame rate is good because you get more latency consistency. Problem is, not all games allow you to cap the frame rate, though most will allow it through console commands. If you encounter a game that does not allow it, you can use a 3rd party software called nVidia Inspector, here you can cap the frame rate of any game you wish.

I'd also like to remind you that average frame rate is not what you want to be looking at in benchmarks. What's important is the minimum frame rate. Having a high frame rate when nothing's happening doesn't matter. It's during those intense fights where everything is blowing up around you and there's lots of fancy effects going on on screen causing you to drop frames. This is where you absolutely need those high frames rates, so this is where you tweak your settings for, do you drop below 60 or 120? If yes, lower your settings. Dirty Bomb has major performance issues and will seemingly random just get some frame drops, this is annoying as fuck, but I don't know what to do about that other than maybe following a tweaking guide.

Your eyes don't see more than 24 FPS, that's why movies are shot at that. This is a myth people, it's pure bullshit. 24 FPS is just the bare minimum of what is required for our eyes to see it is motion and not just a slideshow. Tests have been done that prove we can see and identify individual pictures at several hundreds of FPS. The fact is that our eyes don't see in frames, it sees a constant flow of photons hitting our eyes. So yes, you can see more than 24 FPS, a lot more.

As we have already discussed, frame smoothness is not the only reason to increase your frame rate, input latency is also a big factor. Going beyond that, is there a reason to upgrade from 60 Hz to 120 Hz, I mean, 60 Hz already looks butter smooth, right? Well, it only looks butter smooth because you don't know any better. Once you've gotten used to 120 Hz you simply can't go back to 60 Hz anymore. 60 Hz almost feel as bad as 30 FPS does for you now. So mostly it's a luxury item, because once you've gone 120 Hz, you need the hardware to run at 120+ FPS as well, and you'll have to maintain and upgrade that hardware to always be able to do that because going back to 60 is simply not an option anymore. Is it an advantage? Yes, however I would say it is minor, you can easily compete with a 60 Hz monitor.

3c. Pre-rendered Frames and One Frame Thread Lag

What these settings do is allow your graphics card to add extra frames in the buffer in order to smooth out the frame interval. What you're left with is a smoother image, with more latency.

Basically you want the Pre-rendered frames to be as close to 0 as possible and the One Frame Thread Lag disabled, however you can not always do that. This is because if you do you can start experiencing stutter. As the frame to frame interval becomes inconsistent, it'll feel like your frame rate tanks. 60 FPS can feel like 30 FPS if it's too stuttery. You'll have to tweak this settings yourself to find how low you can go before you start feeling negative effects. That limit can vary from game to game.

You can change the Pre-rendered Frames in your graphics driver settings. One Frame Thread Lag can be changed in the games options menu, or through .ini tweaking in any Unreal Engine game.

3d. Field of View

Field of View, does it give an advantage? Yes of course it does! But it's not as one sided of a debate like some people think. Higher FoV gives you higher awareness of your surroundings, you see more than others, but it comes at a cost... Accuracy! Lower FoV makes you more accurate at the cost of awareness. So it's a trade off, which do you prefer?

There is however a way to get both, and that is to either purchase a bigger monitor, or by sitting closer to your current one. It gives you both the awareness and the accuracy, but again, there's a trade off. Now your HUD is spread out much further away from you, and you have to take your eyes off the crosshair longer than before. Some games allow you to fix that by customizing your HUD, Dirty Bomb is one of those games.

Field of View is not the same in any game. 90 FoV as we all love to love does not mean the same in any game. 90 FoV in the traditional term is actually very low, it is console level FoV by today's standards. The problem is that FoV is measured in different ways for different games. These are the common ones:

- Horizontal FoV: This is where your FoV is based on your horizontal field of view. The standard is 106. Common engines that use this are Id Tech, Unreal.
- Vertical FoV: This is where your FoV is based on your vertical field of view. The standard is 74. Common engines that use this are Frostbite, Cry Engine.
- Source Engine FoV: Let's just call it this because I don't know other engines using this method... Because it's stupid. This is where your FoV is based on your horizontal field of view in a 4:3 aspect ratio. The standard is 90. Common engines that use this are Source Engine.

I used the same FoV in all these examples, the values are different, but they're actually all the same. As you see, the old 90 is just what we used on 4:3 monitors back in the days, Source stuck with that method of measuring, while other engines moved on to be more adaptive and more accurate. The horizontal FoV of 106 in a 16:9 aspect ratio is the same as 90 in 4:3. These values will differ if you're not using a 16:9 monitor, except for the source one which is always the same (even though your actual FoV does change with aspect ratio).

3e. Aspect Ratio

Some people prefer 4:3 aspect ratios. In stretched mode on a 16:9 it will cause your targets to become fat, easier to hit while still maintaining that vertical FoV. Some play in 4:3 with black bars, this one I honestly don't understand, they say it's because they've always played like that, objectively however it's just inferior. The only bonus is that the HUD is more squished closer to the crosshair, but if you can customize the HUD, there's no advantage to this.

Different aspect ratios gives you pros and cons in different game engines. It all depends on how FoV scaling is done. Common ones are as follows:

Horizontal plus (Hor+): This one will always use the same vertical FoV and change the horizontal depending on aspect ratio. Wider = Higher FoV.

Vertical minus (Vert-): This one does the opposite by locking the horizontal FoV and changing the vertical FoV depending on aspect ratio. Narrower = Higher FoV.

Something else (don't know the name for it): This one keeps the same horizontal and vertical FoV regardless of aspect ratio.

The way I see it, you should always just use the native aspect ratio of your monitor, unless you can get an advantage by using a different one and you're ok with blurry visuals (more on that in the next section).

3f. Resolution

Again, some people prefer lower resolutions, probably due to nostalgia or some shit. Problem with LCD monitors is that if you do not play at the native resolution, or a quarter of that resolution (960x540 for 1920x1080, 1280x720 for 2560x1440 and 1920x1080 for 3840x2160 aka 4k), it just turns into a blurry mess. The old CRT monitors supported all resolutions native, and you got a clear image regardless of resolution. But with LCD this is not the case, as you end up with a pixel half way between one diode and the other, causing them both to blend together for a poor result. So I recommend staying native.

3g. Multi Monitor

How about multi monitor? That seems great, no? 150 degree FoV, can't possibly be bad! Well it's pretty sweet, I'll tell you that much. Very immersive. While playing you don't even notice the black bars between the screens, so don't worry about that. The fish eye look is also not very noticeable while you're watching the crosshair in the middle of the middle monitor. You get awesome awareness, however... It has a lot of problems with FoV scaling, HUD scaling and general lack of support in games, but the reason I bring it up in this guide (other than increased FoV) is because it adds latency. Latency you don't want when you're looking for performance. There's a reason I no longer use it. While it was awesome, it was a huge disadvantage over all, screwing over my aim. Not to mention the ridiculous hardware requirements.

But if you do decide to get a multi monitor setup I recommend this website for checking which game supports it fully or partially:

<http://www.wsqf.org/>

They also have some 3rd party software that help increase the supported games.

In the Aspect Ratio section I mentioned how game engines handled aspect ratios in correlation to FoV. When looking into multi monitor gaming you want the game to use Hor+, anything else is just bad.

3h. Visuals vs Performance

Great visuals comes at a cost. So you gotta ask yourself, do you care more about the pretty graphics, or do you want to perform? When I say performance I am not only talking about a higher frame rate, I am talking about making the game easier to read and more responsive. Let's go through some cancer settings we should all avoid.

3h-i. Depth of Field

Adds blur to your peripheral vision, you don't want to see less just because it's not in the center of the screen.

3h-ii. Motion Blur, Radial Blur... Just blur in general

Having your screen turn to a shitty mess when looking around is definitely not something you want. You want it to be crisp so that you can do a quick 90 degree flick and back when entering a room to quickly assess the situation and move on, or simply catching an enemy at the corner of your screen while running around. If you have to wait for the blur to reset just to see what's going on, that's a lot of valuable time lost which will lose you battles.

3h-iii. Bloom

Overexposure of light, can make your crosshair and enemies blend into the background, which is bad. It makes the game harder to read at the speed you want to read it.

3h-iv. Sun Glare and Light Shafts

Block vision, not much more to say about it. Here's a great example from BF3:



(<http://syllogizing.com/images/bf3f/bf3high-10.jpg>)

3h-v. Brightness, Shadows and Ambient Occlusion

You should adjust your gamma and brightness settings in such a way that you see just as good in dark shadow filled areas as in daylight areas. Most games don't allow you to turn off shadows anymore, if you can the do so, but if not it doesn't really matter what settings you are running, but shadows are generally very GPU intensive.

Dynamic shadows however can be useful, these are often shadows cast by enemy, friendly players and yourself so that you can spot people before they can see you, and see if you yourself are truly hidden or if they can see your shadow. In some games this is not a standalone setting and is baked into a general shadow setting, and you'll just have to tweak and find out yourself.

Ambient Occlusion is usually very resource demanding, and make shadows darker, not something you want.

3h-vi. Distortion

Distorts vision, not interested.

3h-vii. Fog

Do you want to squint your eyes to see the enemy through the bullsh.. fog? I don't.

3h-viii. Post-processing

Depending the game, this can be good or bad. In Dirty Bomb it changes the color pallet from looking like BF3 with the blue tint (which is ironic considering the blue tint in BF3 is caused by post-processing), to a more vibrant game. I actually prefer it on.

3h-ix. Potato Config

Often games allow you to turn your settings much lower through console commands or .ini tweaking than the in-game settings do. In Dirty Bomb this was very much possible, but they have restricted it a lot and I'm not sure you can gain much by these anymore.

3i. Crosshair Settings

You want your crosshair to be as visible as possible while staying functional. I've noticed in most modern games they like to make your crosshair white, this is shit. White crosshairs easily blend into light backgrounds, it's not only a problem for white crosshairs, but light crosshairs in general. What can happen is you easily lose your crosshair while tracking enemies above you with a light background like the sky. Light crosshairs are also much more affected by bloom if for some reason you have that turned on. Then you have dark crosshairs, some games like to make their scopes have black lines, works great against light backgrounds, but against a dark part of the map this is also as shit as a light one against the sky. High contrast is what you want, such as green or purple. And to make it even easier to spot I like to use a black outline so that it's always visible against any background.

Crosshair alpha is something a lot of games like to use, makes the crosshair partially transparent, this is shit and you should turn it off. Again you risk having the crosshair blend in.

The shape of the crosshair is subjective, personally I prefer a simple dot in the middle of the screen. Some people like having 4 lines in a cross around an empty middle, but I find I aim much better with a single dot. Even with the cross around the dot I felt more sloppy. I think it's because once I have the enemy within the crosshair area it's somehow good

enough, which it obviously isn't. This could just be me though, but I highly recommend at least trying out a simple dot crosshair.

Dynamic crosshairs, the same thing happened to me as I described above, got sloppy with my aiming, I instantly got more accurate in CS when I dropped the dynamic crosshair. You should already know how spread and spread decrease work in the game you're playing, defeating the need for such a crosshair.

4. Practice and Behavior

4a. Aim

First let's look at practicing aim. What you want to do here is increase consistency/accuracy and speed. Now how do you do that? Well it's pretty simple really, you shoot a bunch of targets over and over and over again. So you think to yourself, I'm just gonna play the game a lot. Well sure, that will obviously improve your aim, but it is not the most efficient way of practicing your aim. What you want to do is practice in a controlled environment with high frequency of targets to shoot. I use a workshop map for CSGO called `training_aim_csgo2`. If you've set the same sensitivity in Dirty Bomb as CSGO (Described in section "2b. Mouse Sensitivity") your aim practice there will carry over. To make it even more similar I type these commands into the console:

- `weapon_accuracy_nospread 1`
- `weapon_recoil_scale 0`
- `weapon_recoil_view_punch_extra 0`

Or a better way to do it is to bind a key to do those commands every time you press it, here's the command you put into the console to bind them to a key. Change "key" to the key you want, and leave the "", otherwise it won't work.

- `bind "key" "weapon_accuracy_nospread 1; weapon_recoil_scale 0; weapon_recoil_view_punch_extra 0"`

These commands will remove CS specific game mechanics such as recoil and spread. Then you pick up the Tec-9 and you have a 100% accurate semi auto gun to practice with. You can leave the `weapon_recoil_view_punch_extra` at default if you have issues compensating for visual recoil.

At first you want to take it slow, you're not practicing speed, you're practicing precision. As you get more precise you naturally get faster. If you've ever played an instrument you know what I'm talking about. Playing fast and sloppy doesn't sound very good. Doing fast amazing flicks can look cool, but without consistency you're not becoming much better. I like to do intensive fast aim, and I just keep going until I can't be bothered any more (usually 1000 targets when I haven't played in 4+ days. And I try to put in 200-500 as warm up on any other day). You want to stay at a speed and target size that you can continuously do forever but also makes you sweat. And don't be afraid to try and push that limit from time to time.

I also like the Angle Snapping, it'll teach you muscle memory for certain snaps, getting your flick aim real strong. The Classic Fast Aim is good for checking your accuracy, put it to

100 targets at a speed you can't hit all of them consistently and try it out, easy to track progress there.

What we haven't talked about is the different kinds of aim. Aim is not just aim. You have flick aim, tracking aim and prediction aim. Then you have other factors such as recoil management and spread/burst control. That's why some people are godlike with a sniper rifles and shit at an assault rifles, and the other way around. My personal poison is the shotgun, absolute garbage with it.

Flick aim is what I practice in CSGO with Intensive Fast Aim, tracking I used to go to Quake Live for. just go on a server and reek havoc with the Lightning Gun. Practicing it in Dirty Bomb is all well and good, but the problem is the frequency at which you encounter people to shoot, which happens a lot more often in Quake Live. A 21 second respawn added to a 15 second run back to action is quite a long time wasted in an aim practice. Recently though I've found a good way to do it in the CSGO workshop map I use for flick aim practice. With the commands that remove spread and recoil in place, I pick up the M4 and I do Classic Fast Aim with the rotational and potentially the linear and static settings on, put shots to kill to 5 and tune the speed to something you can reliably hit, but still struggle. On my current settings I can do roughly 80 out of a 100 targets.

Prediction aim is a bit harder because it depends on how fast the projectile is, how much drop it has and if it inherits the velocity of the player (inertia), in which case how much? This varies from weapon to weapon, game to game. Practicing it with a weapon in one game does transfer over to a degree as you become better at predicting enemy movement, but it needs to be trained specifically with that weapon to become truly good at it.

And as mentioned before, crosshair placement is important. Obviously this is not something you can practice without playing against people, and map knowledge also helps here. Just try to focus and always aim in head height. When you catch yourself watching the floor while sprinting from one place to the next, correct yourself! It doesn't matter if it's extremely unlikely you find someone there, it's about learning yourself good habits. After a while it'll become natural to always aim there.

4b. Movement

Aim is good and all, but so is movement. This is not something you can practice in a controlled environment, you just have to be out there, shooting other players in the face. Learning to be accurate while strafing erratically, crouching and jumping, trying to be as unpredictable in your movement as possible. There's also a technique which is commonly used in Quake like games where you instead of aiming with your mouse, aim with your keyboard. This does make aiming a lot easier, but it also makes you more predictable, as all you're doing is mimicking their movement. Against weaker aimers it works great though. Don't be afraid to use it against enemies not shooting back, you want to increase your accuracy at the cost of mobility where you can.

Crouching and jumping should not be overused in combat. Jumping makes you an easier target with lower accuracy because you are following a set trajectory which a skilled aimer will be able to track quite easily. The advantage though is that it is harder to land headshots, and in certain situation it is the best maneuver. For example if you run out of ammo and are too far away to knife, jump into the nearest wall, wall jump and get to cover ASAP, it's much more likely that you get out of there alive than it is if you just start running away from the enemy. Jumping is also great for medics because it allows you to

keep your speed while charging the defibs mid air. As a shotgun player jumping is great because the loss of accuracy is not as great as it is too an SMG or AR player. But again, it makes you predictable, so use it to engage around corners and throw peoples aim off in close quarters, going over their heads for example is very disorienting and hard to track.

When it comes to crouching it's used to throw peoples aim off by crouching under their crosshair which is likely to be aimed at your head. Problem is that crouching slows you down and makes you predictable, so use it with care. Another bonus is that it increases your accuracy, so if you're not getting focused, do not be afraid of crouching to increase your deadlines.

Avoid standing still. This is not a military shooter, they can most likely see you fairly easily. Unless you're hiding somewhere, waiting to ambush an incoming enemy, do not stand still. While defusing bombs and repairing EVs, move, constantly. Again, unless standing still is the only cover, and moving puts you at risk, in which case, stand still. But mostly, just keep moving. A still target is an easy target, so move.

Use cover, avoid taking fights out in the open, move from cover to cover, as long as it is possible you should use the environment to your advantage. Duck completely behind cover on reloads, with snipers, duck between shots, and if you can avoid it, do not peek the same spot again, move a bit before peeking.

Limit the angles you can be shot from, if you're taking an aim duel with someone, try and make sure the second guy can't just shoot you from your side.

4c. Mouse Grip, Hand and Crosshair Placement

There are 3 general mouse grips. Palm grip, fingertip grip and claw grip.



(<http://mygracze.pl/wp-content/uploads/2014/12/Mouse-grips-crop.png>)

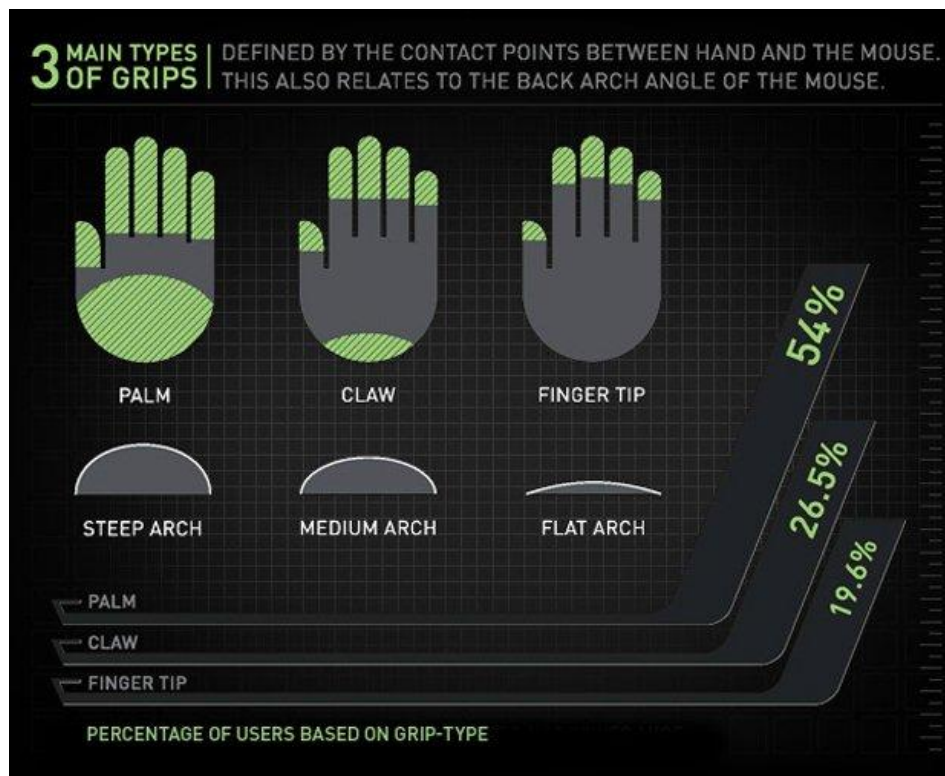
Can be tough to read there, so I'll write it here too.

Palm Grip:
Entire hand rests on mouse.

Claw Grip:
Palm Rests on back of mouse. Fingers arched to make index and middle fingertips perpendicular to mouse buttons.

Fingertip Grip:

Hand hovers in air with only the last digit of the fingers in contact with mouse.



(<http://062d3943d52752284f55-250c061318aedd629e64a503cb52758e.r6.cf1.rackcdn.com/images/YFaFCKAcrlYe.878x0.Z-Z96KYq.jpg>)

I don't think it really matters which one of these grip styles, or combination between them you use, but it's good to be aware how you use your mouse, and especially when purchasing new mice.

When it comes to placing your hand, you should always try to keep your mouse centered horizontally on the mouse pad. Vertically depends on the game, if there is a lot of verticality you should have it centered, if not I prefer to have it closer to the top. Another thing which is good to do is to move your mouse before a turn. When you know you'll be rounding a corner, lift the mouse and move it enough so that when you've turned the corner your mouse is back in the center. This allows you to always be ready to turn in whichever direction is required without lifting the mouse if you encounter an enemy. You're always ready.

While running around or camping you should always keep your crosshair in head height of where you're aiming. If someone pops out of a corner, or you round the corner and meet an enemy there, you don't have to flick up before you start shooting, you just start shooting and he dies. Again it's about being prepared and cutting down on delays and inaccuracies.

4d. Class/Mercenary

Not much to say here other than play the game. Though it can help to learn good turret placement, smoke placement, nade throws, sniper spots, airstrikes etc.. Watching streams of pro players is not a bad idea or youtube video/tutorials on certain classes and maps.

4e. Map and Game Knowledge

Learning the layout, shortcuts, flank routes, cheeky angles to peek, camp spots, ammo placement, MG placement, Smoke/grenade throws, good bomb placement (that can be well defended, and from where you can defend them), trick jumps, call outs. This all allows you to make better decisions, faster, in action.

When you learn the maps you also learn where the enemy commonly likes to put up their mines, turrets, pre-nades and airstrikes. Being aware what classes are being played on the other team and what you can expect to encounter, you'll be careful around certain areas of the map where it is common to place mines and turrets. After playing against a certain player for a while you'll also learn where they prefer to place their stuff, remember it because they will try to bait you into their trap. Also when you see an enemy use a cleaver spot on the map for their mine, turret, healing station or whatever, take note and use it yourself, learn from your enemies.

Spawn Timers are handy to keep track of. In Stopwatch spawn timers for each team are the same. By knowing this it allows you to flank at the right time without fear of being spawned on. You can time how long it takes for the enemy to get to a certain point on the map and pre-nade/airstrike them when they get there. You can time your pushes and try to get the enemy on a long spawn, increasing your chances of getting the objective done.

In Objective mode the spawns are offset by an unknown amount, you can however figure this out by killing someone without finishing them and keeping track on when they respawn, then take note of your own spawn timer.

In general the spawn timer is also useful for you to know when you should push and when not to push. A risky push is for example not recommended when the spawn timer is just about to reset, or just reset and you risk ending up with a 25 second respawn. It's better to push when the timer is mid to low and stay a little more passive when it's resetting or high.

4f. Sound

You can get a lot of information by just listening to what's happening around you. The most obvious one is that you'll hear footsteps, warning you that an enemy is about to engage, allowing you to set up and get ready. Other stuff in the game also makes sounds to warn of danger, airstrikes can be heard before they go off, which should get you looking for the marker on the ground and long jump away to safety. Mines and Turrets also makes noise, so you can actually hear them before they blow you up. You'll also hear when enemies are planting or defusing the bomb, which allows you to hold an angle and watch the bomb at the same time, without actually looking at the bomb.

4g. Playing Smart

Aim is inconsistent. No matter how good you are, you can not 100% rely on it. Sometimes you have a bad day, sometimes the opponent just out aims you in every duel. So what do you do? What can you lean on? Outsmarting the opponent! What does that mean? Well it means not running into fights you can't win, knowing when to back off, knowing not to peek the same corner too many times, taking tactical breaks, using your abilities at the

right time, taking unexpected angles, flanking, using the minimap, using sound, using the spawn timer, the list goes on. It's all about reading the opponent and your surroundings and doing the opposite, or the most advantageous of what you think they think you're doing. Mind games. Map knowledge helps a lot in this as it allows you to know the common response to your actions in a certain area and how you can respond differently.

Do remember that this is an objective based game, so you do not necessarily have to kill your opponent to win the engagement. Sometimes all you have to do is make a presence, stay alive, keep the enemy busy and away from other key areas of the map, or just keep them from getting past you. Sometimes stalling them is the best you can do. This can especially be useful in 1vsX situations, or low HP situations where taking the fight is very risky and stalling is sufficient towards winning.

I know this is pretty vague, but it's just something that needs to be learned through trial and error. Each time you die, instead of getting angry and calling bullshit, look at the situation objectively. Was it really bullshit? Ignoring RNG and player skill, in a situation where the opponent was better than you, would you still have made the same move? Or was it just a stupid move? Maybe you could have done something different that would have lead to a preferable result. Take a mental note.

I'll admit, I'm not the greatest at this, I will lean too hard on my aim a little too often, this is something I need to work on myself.

4h. Teamwork

This is a team based game after all, so of course teamwork is important! Generally what you want here is someone clearing out enemies around the objective so that the engineer can do the objective while everyone gets ammo and health. This means you do NOT want everyone stacked on top of the objective. PTFO is fine and all, but you only need one guy to actually be close to the EV at any one time (it does not move faster with more people), you only need one guy planting the C4, etc..

The other guys you want to spread out, preferably push each their side of the map, getting crossfires to support each other while at the same time keeping a distance so that the enemy can not just spam one entrance. having a guy or two sneak around for a flank if the opportunity presents itself is not a bad idea either.

If that does not work you can try to vary it up with full force pushes through a single entrance, or other variations. If you are playing with a full team you obviously want some set strategies on each map involving specific classes and abilities within the pushes and defence.

What's important to understand is that even though K/D over all does not win the game, it sure as hell helps. Remember, a dead player can not do the objective, and this applies to both teams. Throwing yourself repeatedly into a minefield is not going to win you the game. But at the same time, stacking your K/D does not push the objective. You do what you can in whichever role you're playing. If you're pushing the objective and the enemy shows up, stop and kill them, or waste their time by keeping them out of line of sight (while pushing the objective preferably) until your teammates deal with them. If you're killing enemies and they kill your objective player, go push the objective. Be lenient as long as it benefits the team. If your team is missing a healer/fire support/engineer or slayer, switch to a merc more beneficial for the team success.

If your team dies and you are the only one left, you don't have to push in. If it's a suicide push you should either try and keep up pressure by holding a position defensively until your teammates come back from spawn, or you pull back to safety. Do not push in alone! And if you are in a situation you're not likely to survive, in order to avoid full spawn and offset from your team's spawn, do not be afraid to press K and suicide to spawn with the rest of your team, just make sure the spawn timer hasn't reset first so you don't end up on a full spawn.

Communication is important if you want to take it a little more serious. Calling out tactics and follow them through. Learning each maps call outs, and then using those call outs to rely information and respond to your teammates information. For example to tell your team how many people are in a certain room, pushing or pulling back, predicting their move, saying their mercs and health values if relevant. Learning to focus fire. Calling out that the phoenix needs to die and then have your teammates all shoot that guy (This is maybe not so relevant in a game like this with such low TTK, but as TTK goes up, focus fire is more and more important). Keeping the voice-com clean of random chatter, saying "Awwww, fuck me, I should have hit that guy" is not useful information, all it does is clutter up the voice-com. Repeating messages should also be avoided. You don't need to hear "They're planting, planting, planting!!!", again it's just unwanted noise. All that should be on the voice-com is tactics and call outs. This of course does only apply to serious matches. Nothing wrong with talking shit while playing casually, it's all in good fun.

4i. Practicing as a Team

Team practice is not about you. You're not there to improve your aim, your movement, your smarts. You're there to practice your cooperative ability. You're there to learn tactics and improve them. You're there to get better at doing and acting upon call outs and getting a better team synergy. You're there to play your role in the team, and improve upon it. All that other shit you get as well by just playing, but the main focus should be to improve your teamwork, not your individual skill.

I also recommend practicing with the team on empty maps, talking strategy, going through them and practicing them in a controlled environment. You can learn and practice the timing of yours and the enemies team moving around the map, when and where to use abilities.

Don't be afraid to write things down in word documents, spreadsheets and images. Having a cloud based drive of some kind which everyone on the team can access, make and share files with map overviews and strategies is a great tool to be used.

5. Hardware

5a. Mouse

5a-i. Sensor

Laser or Optical? Laser mice have higher DPI and are more expensive, but it's just marketing. In reality they are not as precise as optical mice. They suffer from a lot

of acceleration issues. Here's a list of the best sensors currently on the market (aka your mouse should have one of these):

- STMicroelectronics OS MLT 04
- Avago/Pixart ADNS 3090
- Avago/Pixart PWM 3310
- Avago/Pixart ADNS S3668
- Avago/Pixart ADNS S3888
- Avago/Pixart ADNS s3988
- Avago/Pixart ADNS 3095
- Pixart PMW 3366

Avago used to be THE sensor manufacturer up until Pixart bought them, and now Pixart are releasing the same sensors under their name.

5a-ii. Weight

Ideally you want your mouse to be as light as possible to decrease friction and the effects of inertia. What I like to do is take all those weights that come with the product and throw them in the bin, and you should too. Buttons add to weight, so if you're looking at a fancy mouse you want that has a billion "cool" buttons, check the weight and be disappointed.

Once you go light, you can never go back.

5a-iii. Shape

The shape of the mouse is obviously subjective, however there are things that factor in when making that decision. And that is your mouse grip, some mice are specifically made for a certain grip. Best thing to do is of course trying one in a store or something.

5a-iv. Wired vs Wireless

Unless you have a good reason to, use a wired. It has lower latency, is more consistent and never stops working in the middle of a match because you forgot to charge it.

5a-v. Drivers and On-board Memory

If you don't plan on installing/using the drivers for a mouse you don't need on-board memory. But if you do plan to use the driver at any point to change the predefined DPI settings, mouse buttons or anything, on-board memory is definitely highly recommended. Last thing you want is having your mouse suddenly change back to default DPI in the middle of a game because the driver crashed, or having actions be delayed because the CPU call that was made from the mouse to the driver needed time to process.

Another great thing about having on-board memory is that once you've set up your mouse as you like it, you can just uninstall the driver and not have it hog

precious resources. Then you can take that mouse with you between your own PCs, to a LAN or a friend and have your settings without having to install anything.

5b. Mouse pad

The mouse pad is important. Using a sheet of paper or just your desk is sub-optimal. The reason is that it wears out your mouse feet faster, it has more friction and/or inconsistent friction, it might cause tracking issues for the mouse sensor and sweat will have more of an effect on tracking and friction.

Cloth, Hard plastic, Glass or Aluminium? I've heard optical mice works best on cloth and laser works better on the other three, can not confirm if that's true though. In general I'd just say go with what feels best for you. Cloth has more friction than the others. More friction is not all bad though, it's easier to be precise with a little friction. Some people also say that cloth is better for low sensitivity and the others are good for high sensitivity. Again, I feel it's preference.

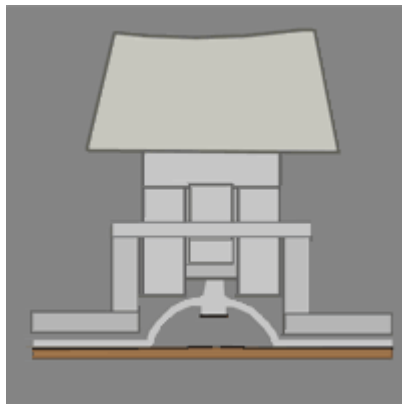
But one thing is clear to me, size... size matters! You want the mouse pad to be as big as you can fit on your desk. My mouse pad is 90 cm wide, recently upgraded from 47 cm. I could probably go back to 47 cm, it was big enough, but 35 cm ones are way too small for me now. Of course size depends on your sensitivity, but your sensitivity can also depend on your mouse pad size.

(I'll put in some recommendations later)

5c. Keyboard

5c-i. Rubber Dome switches

Shit standard keyboards. Often you'll find the expensive gimmick gaming keyboards using these switches, stay far away from them!



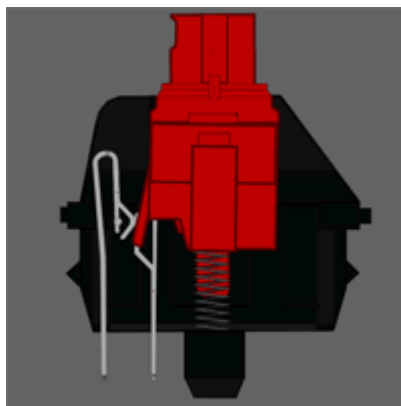
<http://i.imgur.com/5K9Uy.gif>

5c-ii. Mechanical switches

Does a mechanical keyboard give you an advantage? Well that question can only be answered through another question, which is: Does the game require double tapping? If yes, then a mechanical keyboard with red or black switches can give you a slight advantage. Other than that it's mostly just about getting a better experience, even though companies will tell you all about that lower actuation distance. It feels better to write and play on a mechanical keyboard over a rubber dome, and definitely better than scissor switches.

Choosing a mechanical keyboard might not be that easy. There are a lot of different switches that all serve a different purpose and feel unique. There are also different brands, some using different colors for similar designs. I'll go through the most common ones from the most popular brand, Cherry.

- Red (Orange): These ones have a linear actuation force and are silent. Optimal for gaming.



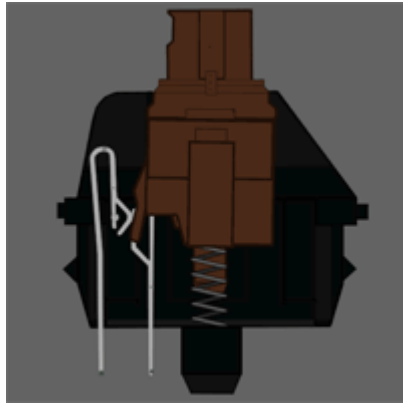
(<http://www.keyboardlover.com/img/switches/1dc06464b9.gif>)

- Black: These ones are the same as red, but requires a higher actuation force and are silent. Optimal for gaming.



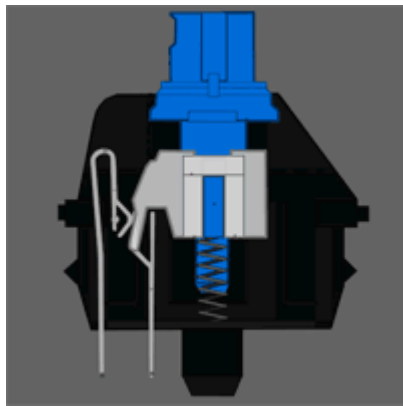
(<http://www.keyboardlover.com/img/switches/e4c2fb73c9.gif>)

- Brown: These ones have a small bump when you actuate the key and they make a little bit noise. Good all around.



(<http://www.keyboardlover.com/img/switches/e2cdd50a78.gif>)

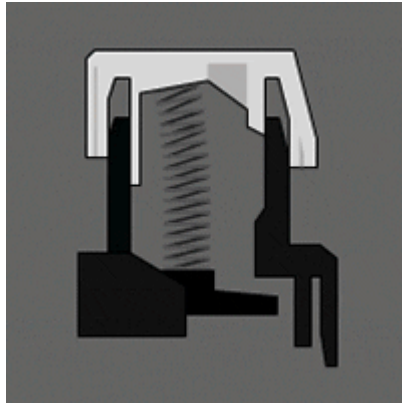
- Blue (Green): These ones have a bigger bump, make a lot of noise and release later. Optimal for writing.



(<http://www.keyboardlover.com/img/switches/dbe6e9caad.gif>)

Other than MX Cherry switches you have the classic old IBM Buckling spring, which is a favorite by a lot of old school people, however I think it's fairly hard to come by these nowadays. Razer recently started making their own switches, and by them making switches I mean they use Kailh switches and put their name on it. They are similar to MX Cherry, but the color coding is different, Razer Green is the same as Cherry MX Blue, and Razer Orange is the same as Cherry MX Brown. Kailh switches are also cheaper than Cherry, which is probably why Razer switched. Kailh guarantees 60 million clicks while Cherry "only" guarantees 50 million, so which is actually better, I don't know. Then we have Topre, and I can't really tell you much about these as I have no experience, and limited research on the matter.

Buckling Spring:



(<http://core0.staticworld.net/images/article/2014/01/buckling-spring-100225900-orig.gif?timestamp=1389909076733>)

5c-iii. Scissor switches

The shittiest keyboards, found on laptops. Made specifically for low profile, good for nothing else.



(<https://www.leaseweb.com/labs/wp-content/uploads/2013/12/post-131390-1369017162.gif>)

5d. Monitor

120+ Hz with 1ms response time. Preferably also with some version of Lightboost.

To be expanded...

5e.Computer

Beast enough to run consistently games at a frame rate above your monitors refresh rate, no frame drops.

To be expanded...

5f. Sound

Get a headset with a minijack connection, none of that USB garbage!

To be expanded...

5g. Desk and Chair

Comfort and space is important for prolonged gaming sessions.

To be expanded...

6. Recommended Settings and Hardware (TL;DR)

For more in-depth information about these settings, read their corresponding section.

6a. Mouse Settings

DPI: ~400-3200
Polling Rate: 500-1000 Hz
Smoothing: Off
Acceleration: Off
Enhance Pointer Precision: Off
Sensitivity: 15+ cm/360
Windows: 6/11
Raw Input: On
MarkC Mouse Fix: Irrelevant

6b. General Settings

VSync: Off
GSync or FreeSync: Unknown
Frame Rate Cap: Optional
Frame Rate: Minimum frame rate above monitor refresh rate
Refresh Rate: As high as you can afford
Pre-rendered Frames and One Frame Thread Lag: Off
Field of View: Personal preference
Resolution: Native
Aspect Ratio: Native
Multi Monitor: No
Depth of Field: Off
Motion Blur: Off
Radial Blur: Off
Blur: Off

Bloom: Off
Sun Glare: Off
Light Shaft/God Ray: Off
Dynamic Shadows: On
Ambient Occlusion: Off
Distortion: Off
Fog: Off
Post-processing: Depends
Crosshair: Green/purple static dot with black outline.

6c. Hardware

Mouse Sensor: Optical
Mouse Weight: Light
Mouse Shape: Depends on grip
Wired or Wireless: Wired
Mouse pad: As big as you can fit on your desk
Keyboard: Mechanical
Monitor: 120+ Hz, 1ms
Sound: Headset with minijack

7. Guide Update Log

23. September 2015

- First draft, no pictures or recommendations.

24. September 2015

- Reformatted to improve readability.
- Split the category "Field of View, Aspect Ratio, Resolution and Multi Monitor" into each their own categories.
- Added the following category: "Recommended Settings and Hardware (TL;DR)".
- Moved the category "Mouse Grip, Hand and Crosshair Placement" away from its own section into the "Practice and Behavior" section.
- Expanded the following categories: "Field of View", "Aspect Ratio" and "Multi Monitor".
- Moved the mouse and keyboard specific categories into subcategories and expanded upon some of them.
- Added empty Hardware categories for "Monitor", "Computer", "Sound", "Desk and Chair" with plans to write about them in the future.

3. January 2016

- Added Visuals vs Performance and Crosshair Settings.
- Moved the guide from forum to google docs, and formatted accordingly.
- Added pictures.

- Expanded upon the “Keyboard” section.
- Added “Drivers and On-board Memory” under “Hardware, Mouse” and made some changes to the “Weight section”.
- Expanded upon the “Aim”, “Movement” and “Mouse Grip, Hand and Crosshair Placement” section of “Practice and Behaviour”.

8. March 2016

- Fixed an error in “2b. Polling Rate” claiming PS/2 connectors used CPU Polling, when they use System Interrupts.
- Changed name of the category “4d. Map Knowledge” to “4d. Map and Game Knowledge”
- Expanded upon “4b. Movement”, “4d. Map and Game Knowledge”, “4g. Playin Smart”, “4h. Teamwork” and “4i. Practicing as a Team”.
- Added category “4f. Sound”.

14. March 2016

- Expanded upon “2a. DPI/CPI” and “5a-i. Sensor”.