

Macs and region free drives.

This document is about using a “region-free” Macintosh DVD drive, not about how to do it, but how your Mac will behave with a region-free drive.

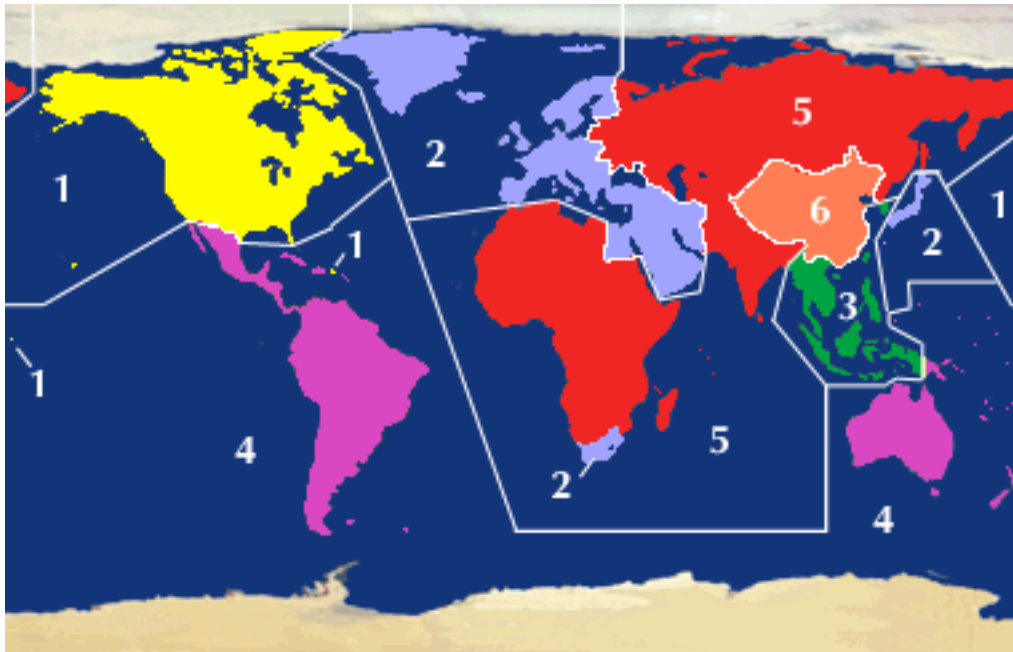
A frequent misunderstanding is that, after upgrading their DVD drive, some people may think there won't be region switching dialogs anymore.

I received so much mails about this particular point that I decided to write this small document, hoping to save me dozens of replies. You will learn here why there are still region switching dialogs, and why you want it to be this way.

As I will evoke some technical aspects of the DVD and the regional protection, I will try to keep it simple so that not technically inclined people may understand it (or ignore what they don't understand).

Glossary of common DVD terms

- A **region** is a part of the world, identified by a number (1, 2, 3, etc ...). A given country belongs to one and only one region, e.g. the US belong to region 1, Netherlands and Belgium to region 2, Chile to region 4, etc. Here is a map of the regions:



- **RPC-1** is the technical synonym for “region-free”. RPC stands for “Region Playback Control”.
- **RPC-2** is the technical synonym for “region-locked”.
- The **medium** that stores the movie looks like a CD. However, it can store much more data (more than ten times the content of a CD). Movies that you buy are on a read-only media (like audio CDs), and cannot be modified. A CD-ROM drive cannot read a DVD medium.
- The **movie** is stored on the medium in a well-defined way. The layout and encoding of the movie on the media is complex (and all of its specifications are not made public). Among other things, a movie contains eight flags (one per region). Each flag describes if the movie may be played in the corresponding region. It also contains instructions on how to play the movie chunks, and the interactivity elements such as buttons, menus, subtitles, etc.
- The **drive** is the hardware that allows your Macintosh to read the data stored on the movie’s medium.

- A **region-free (RPC-1) drive** is a drive that has no restriction on the movie it may read. It simply ignores the eight region flags that are on the movie media. You may compare this to a CD-ROM drive that is able to play any audio CD, wherever you bought it. And this seems normal to all of us! *Indeed, it is!*

- A **region-locked (RPC-2) drive** has the following restrictions:

- to play a movie, it must be 'set' to a region.
- it will read movies according to the movie's flag corresponding to the drive's region. If the movie's flags disallow playing for the drive's region, the drive won't transmit some movie's data required to decrypt the movie, and instead will report an error. The missing data is a decryption key for the infamous CSS encryption.

- its region may be changed only a very limited number of time. After all these changes, your drive will be definitely locked on one region, meaning you won't be anymore able to play movies from other regions.

- The **player** is the application (it may be helped by some hardware, e.g. a MPEG decompression card) that transform the binary data into 'pictures' and displays them on your screen. The player reads the data stored on the medium and interprets it, effectively playing the movie. The player supports the interactivity features: buttons, subtitle, different audio tracks, etc. The interactivity system is based on a virtual processor (it is the same virtual processor on all readers, Mac, PC, home, etc) that runs a very basic assembly language.

Why are there still regions with a region-free drive?

Without going into any detail (some of which I ignore...), the DVD specifications are such that:

1 - The player must belong to a region.

2 - A movie may play differently based on the region of the player. This ability is used as a region-free counter-measure on some movies. Such movies are nicknamed 'smart discs', 'RCE', etc... When played on a player with mismatched region, they will only display some warning, not the movie. More, the player won't detect this condition, as the displayed warning is a real valid movie (like the credits at the end of a movie), just not the one you intended to watch!

To address point 1, when the drive is region-free, the Mac itself is assigned a region, and the player then belongs to that region. This implies that, even if your drive is region-free, playing a movie still involves the Mac's regional settings, regional settings implies region switching, that is, you may be prompted for region changes.

Point 2 implies that region switching can't be fully automated. It can only be automated under this specific condition: the movie you want to play is authorized in one and only one region. If a movie is marked as playable in two or more regions, it may be a 'smart disc', so you have to choose the right region manually. It's no joke!

So, yes, "region-free" is somewhat an inappropriate term. It applies to

the drive only, overlooking the need for regions in the player.

If region switching cannot be avoided, can it be minimized?

Alas, there is no way to minimize the region switching dialogs. In fact, the only 100% safe way to play a movie is to set the region (using **Region X** or any similar utility) *before* playing it, which is indeed maximizing the number of switches!

The most common and handy way to watch movies is to insert the movie and change region only when requested, using **Region X** to reset the allowed changes counter from time to time. When a RCE or 'smart' disc has trouble with the current region, use **Region X** to switch the region to the right one.

Some commonly misunderstood points

My drive is now RPC-1, but I don't see any differences. The region change dialogs still appear.

Mmmh, yes, this is normal (and this is what I tried to explain above!). If your drive is region-free, these dialogs (which look exactly the same as before) will change the Mac's region, not the drive's.

You're wrong, I use a 'Region Free DVD Player', there are no more region switching dialogs.

While there is no such patched DVD player for OS X at the time of writing, one may be available later. Such a 'region-free' patched player will have trouble playing smart discs (or RCE discs, etc...). There are very few smart-discs yet, so you may have no trouble with the 'region-free' patches, and you might want to stay with it until you have trouble with some movie. But keep an unpatched copy of the player ready...

So what's the point having a region-free drive, if there are still these region switching dialogs?

A region free drive will allow you to change regions as often as you need.

With a region-free drive, when you have no changes left, you may use a tool like **Region X** to reset the counter indefinitely. With a region-locked drive, you can't reset the counter and are stuck in the last region the drive was set to.

Version history:

2.0.0 (Nov 10, 2001): OS X Version.

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