Hello everyone,

@coopervid, @kufo and @tectpro tested how to achieve the best burning results on BD-R DL / TL for

people that still burn their data/movies to BD-R discs. Especially regarding the avoidance of layer break issues.

First, a little introduction, so everyone knows what is happening.

What is this long-lost feature, and why is it lost?

Well, it is not lost; it is an often-deactivated feature as people typically want to burn as fast as

possible. The feature we are talking about is called Hardware Defect Management.

What is this Hardware Defect Management?

Outtake from the Multi-Media Command Set Description for Write-once Blu-ray Disc (BD-R):

“The Defect Management system of BD-R provides methods by which a defective Cluster in the

User Data Area may be replaced by a Cluster from a spare area.”

“Defective clusters are replaced from the allocated spares.

The defect management and recording management information needs to be updated many times during use.”

What does that mean?

A special area on the BD-R is or has to be created. When burning the BD-R, a few things will happen.

1. The burning process will slow down, usually by 50%, meaning 2x becomes 1x. Sometimes it might be less.

2. During the burning process, the data written is verified, which is why it slows down the burning

speed.

3. If the drive detects a defect, the sector will be written into the spare area that has been created.

Won’t that affect the playability of the media?

No. Hardware Defect Management has been specifically created for this purpose.

Enough with the technical mumbo jumbo; let’s get to the testing process.

Software:

IMGBurn (to burn the files)

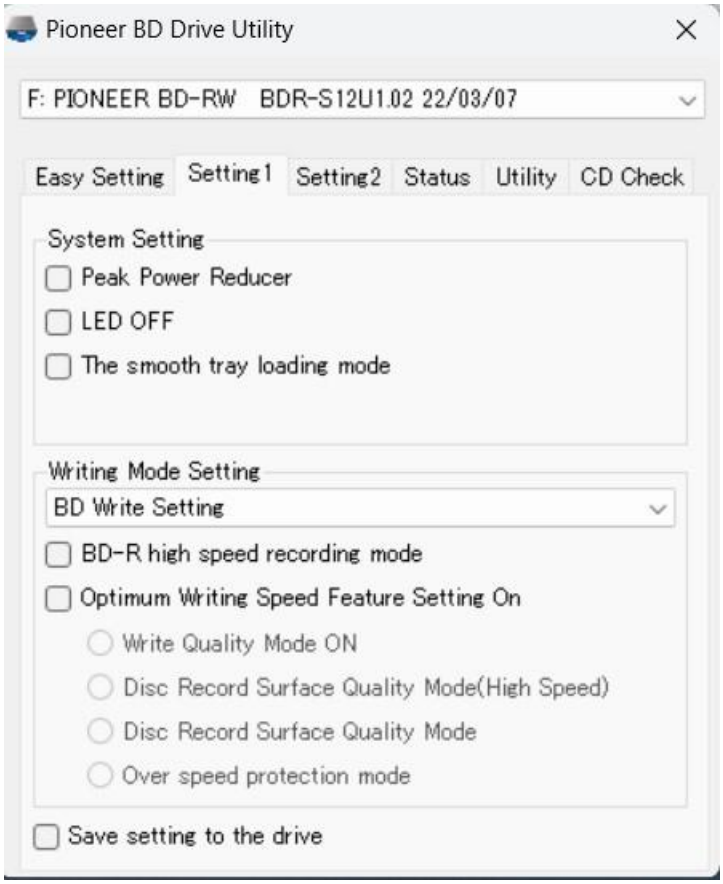
A burner capable of burning BD-R 50GB/100GB.

While this should work with every burner capable of burning BD-R 50GB/100GB, we found during

the tests that a Pioneer burner achieves the best burning results in combination with quality media.

Special drive settings:

1. PIONEER

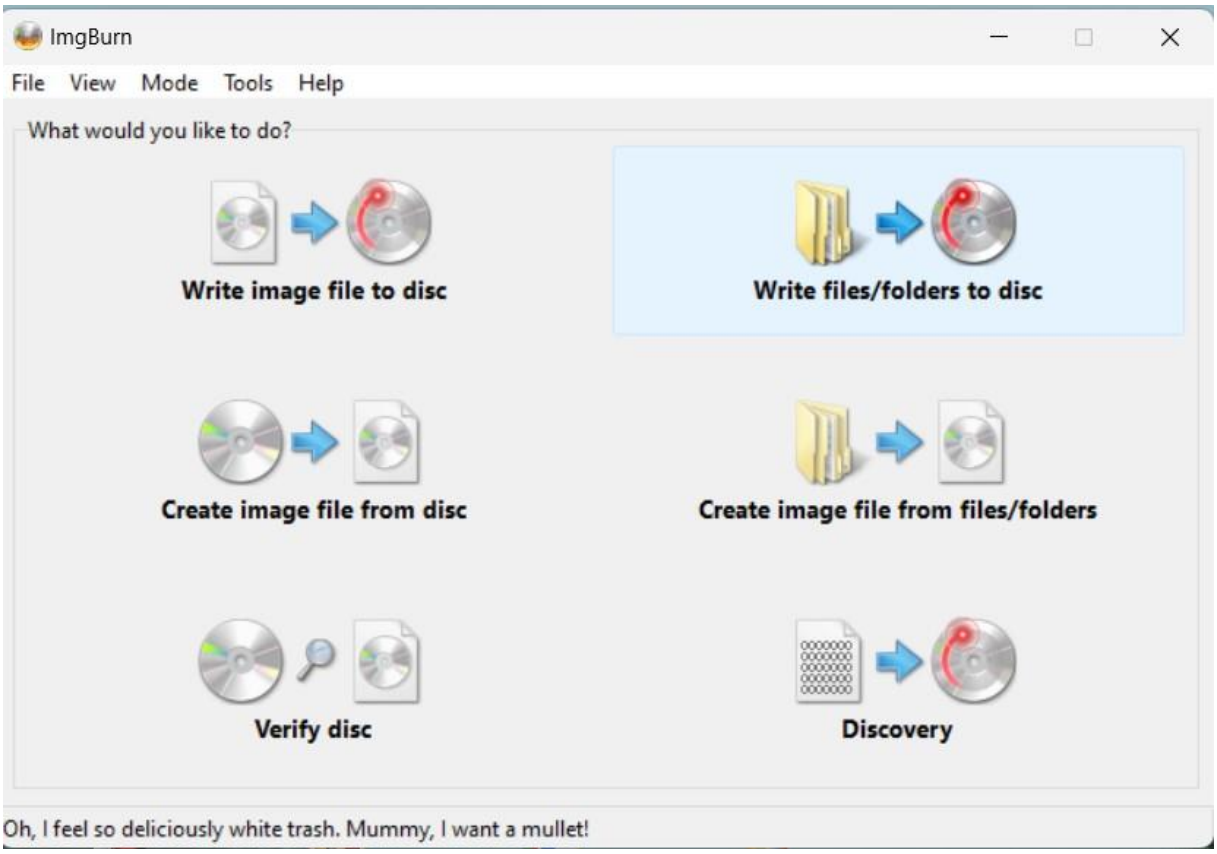


Make sure everything is de-selected.

IMGBURN setting:

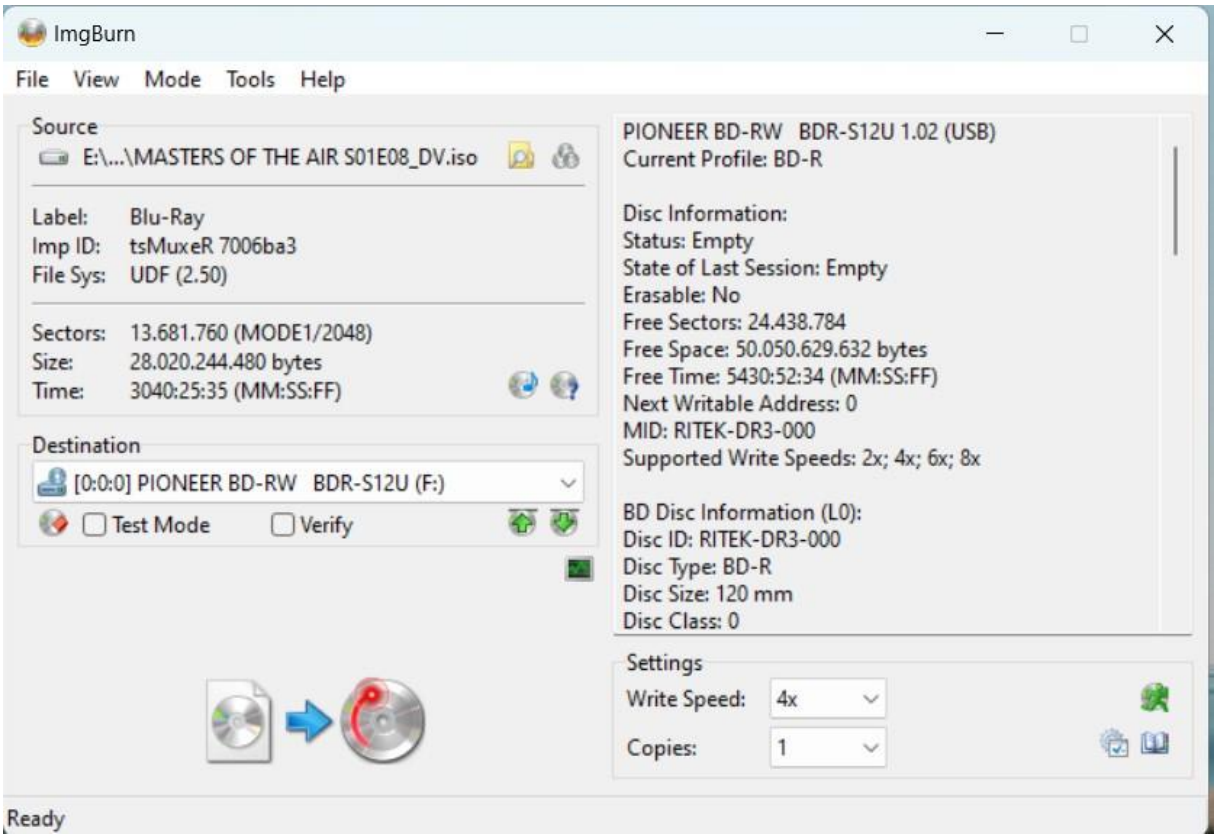
Creation of the Spare Area

Just so you know, the below process needs to be repeated for each media you burn.

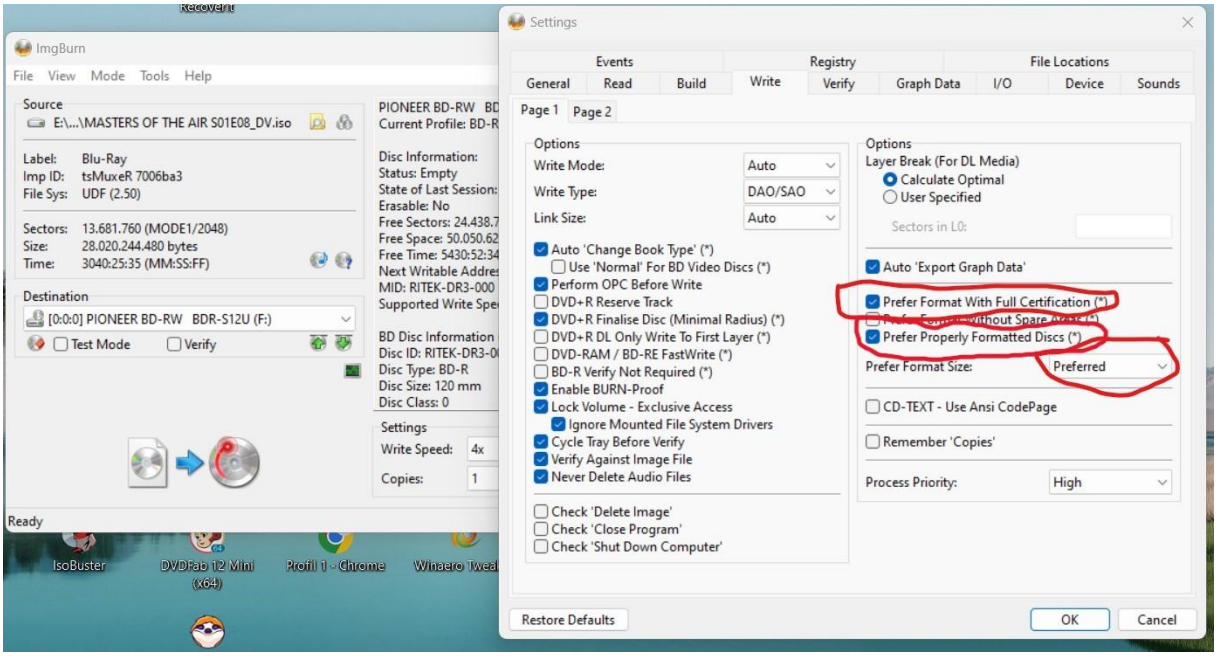


Insert your BD-R 50 /100 disc.

Load your ISO file or the folders you want to burn.

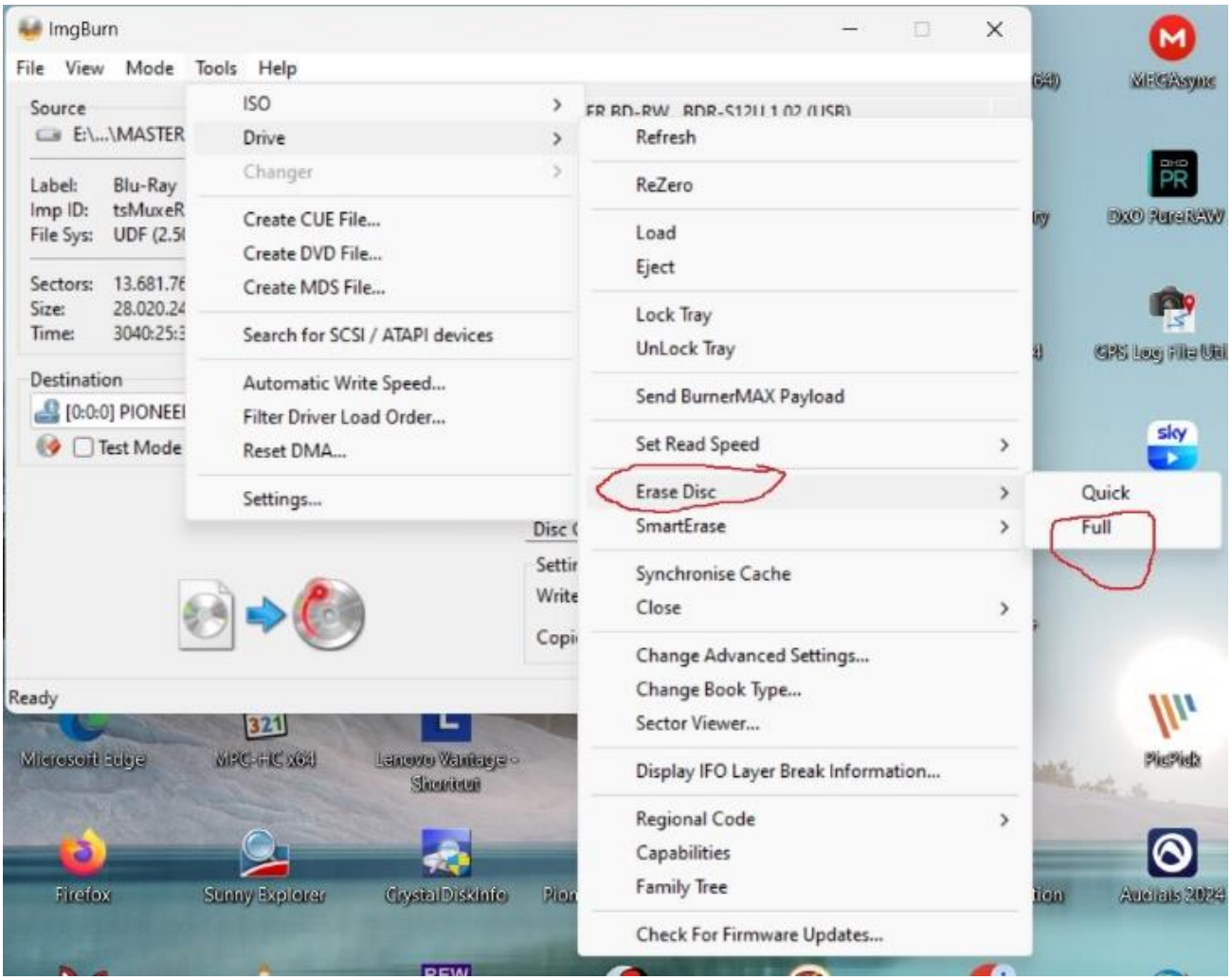


Then go to “Tools” “Settings” “Write” “Page 1”



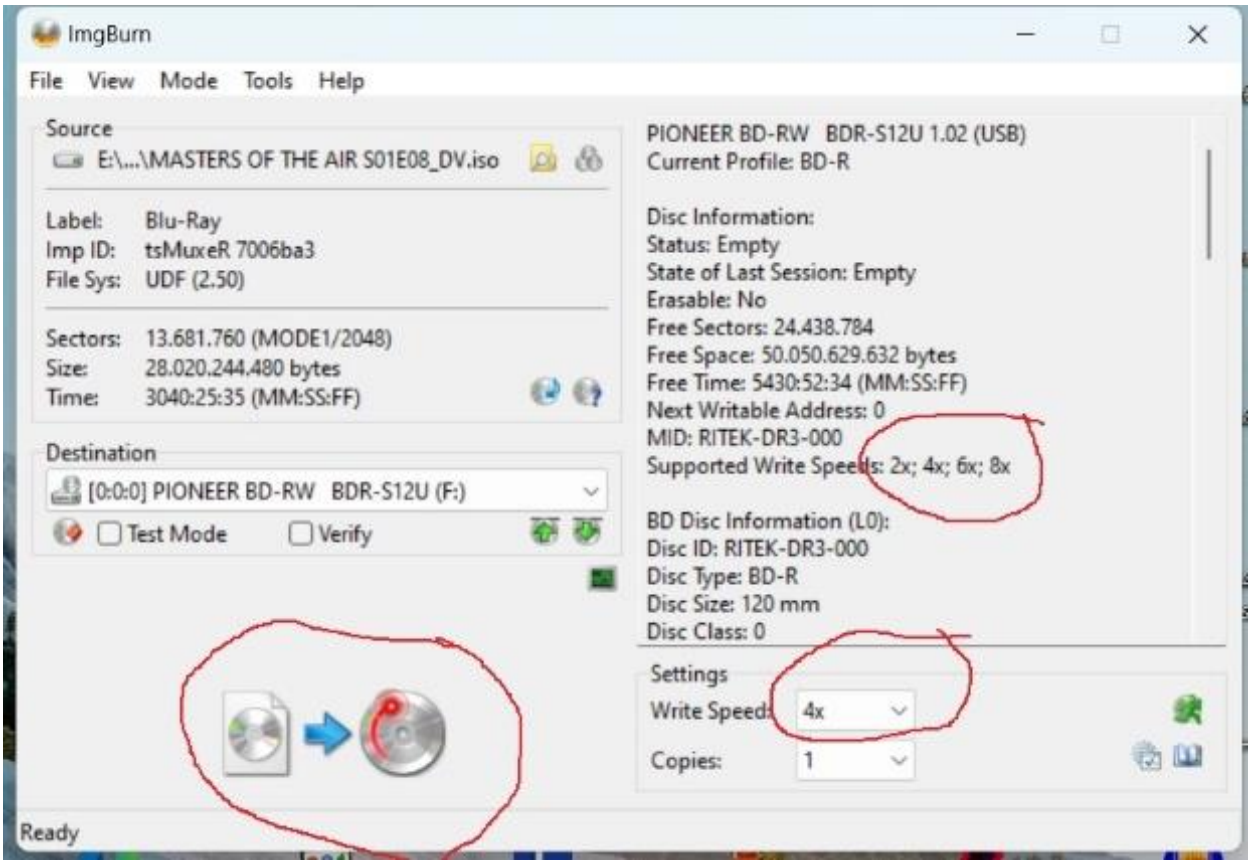
Check the options circled in red above.

Then go to “Tools” “Drive” “Erase disc” and do a ”Full” erase. It will be very fast despite the warning you receive.



Then you have to check the speed for burning. Usually slower speed gives better results but choosing 4x is most of the times OK. Be aware that the actual burn speed will be about 50% of what you pick. So 8x will equal 4x, 4x will equal 2x etc. This is because the drive writes a sector and then reads it back if the burn was successful. If not it will write the written sector in the just created spare area. This happens most of the times near the layer break which is very critical and burn failures in that area. The spare area will contain good data for the failed data near the layer break and players seamlessly take the data from there.

Burn the media.



Selecting Preferred will use up around 3.5% to 4% of the media. This needs to be factored in before burning a media or shrinking your movie to fit on a disc.