Duplicating USB flash drives/card with different sizes

If you take several USB flash drives or SD flash cards that are labeled "16GB", especially from second tier manufacturers, you can easily find that they are not all exactly 16GB, some of them can be 15.9GB and some of them can be 15.8GB and so on.

Sometimes difference can be 100 sectors (sector is a smallest addressable cell on flash drive and is 512 bytes in size) and sometimes it can be 200 MB.

The reason why there is a difference is related to quality standard of particular manufacturer and it does not impact regular users when copying files from local PC. But it does impact those who is trying to clone such flash drives with duplication hardware.

Lets consider following scenario: User is trying to copy 16GB Master USB fash drive into 60 pcs of 16GB slave drives.
He thinks that all drives are the same and there will be no problems. But actual size of the Master is 15.95GB and actual size of slave drives are between 15.8GB and 15.97GB

Duplicators manufactured by Virtual Console are following the "smallest size rule" meaning we will only copy data from Master to all the Slaves that is equal of the smallest size of all flash drives.

So in this particular case we will only copy 15.8GB of data from Master to all the Slaves, because it is a smallest size of all USB flash drives.
What if Master flash drive has some important data at the last 200MB of the address space?

This data will not be copied and will not be present on slave drives after duplication is complete. Verification process will not detect this problem because it verifies only the data that was copied and it is 15.8GB.

What are the solutions for this problem?

1. Ensure that Master Flash drive is always smaller than any of the Slave drives that you use. To see the actual sizes of the flash drives you can use the "Monitor" Tab on FCD Manager application.

2. Defragment the data on Master flash drive to ensure that data is placed contiguously from the beginning, minimizing the chances that important data will be placed at the very end of the flash drive address space.

3. Enable "Size check" option on FCD Manager, that will abort duplication process if size differences are detected.