Understanding Disk IDs

To enable an operating system to uniquely identify disks, a signature is generated as part of the initialisation process. In the case of an MBR partitioned disk, this is a 4 byte value, typically presented as an 8 character hex string. This is extended to a 16 byte value for gpt disks, presented as a GUID.

You can see the disk signature by opening a command window, and typing

```
diskpart
```

followed by

```
list disk
sel disk <n>
```

replacing <n> with the number of the disk you wish to query and then type

```
detail disk
```

MBR disk example

```
DISKPART> detail disk
...
Disk ID: 4936F9A1
```

GPT disk example

```
DISKPART> detail disk

...

Disk ID: {C0F4976C-CFA6-45C1-BBCE-3B40016336E5}
```

MBR partitioned disks

For MBR partitioned disks, the disk signature is relevant for (Vista and later) booting and also to ensure drive letters assignments persist between reboots. As it is used to uniquely identify disks, Windows will not allow multiple disks with the same disk signature to be on-line at the same time. If you attempt to bring a second disk on-line, windows will re-calculate the disk signature on the second disk. This will potentially make it not bootable and also change any drive assignments.

For these reasons, as part of a clone or restore process, Macrium Reflect will recalculate the signature according to the table below. If the signature is recalculated, the boot configuration data (BCD) store is located and updated and the drive mappings in HKEY_LOCAL_MACHINE\SYSTEM\MountedDevices\ are also updated if necessary.

GPT partitioned disks

Unlike MBR partitions, GPT **partition** entries have an associated unique id. This allows GPT partitions to be uniquely identified without the disk signature making the disk signature redundant for the purposes discussed above.

Note: Windows does not allow multiple disks to be online with the same MBR Disk ID or GPT GUID. For this reason, Macrium Reflect will always ensure there are no duplicates when restoring or cloning.

Summary

The following table indicates how disk signatures are treated for restore or clone operations:

Operation	Target disk Signature

Any restore or clone to a GPT disk	Existing signature is not changed. Or, if the target is an empty/uninitialised disk then a new random signature will be generated.
All target partitions overwritten	The signature will be the same as the source disk for an image Restore operation. Or, a new random signature will be generated for a Clone operation.
Source disk id present after restore (e.g. in the case of a clone)	New randomly generated signature
Some original target partitions remain after restore	Existing signature is not changed.
Target partitioning scheme different from source (e.g. source MBR, target GPT)	Existing signature is not changed, If the target is an empty/uninitialised disk then a new random signature will be generated.
Target uninitialized, MBR source disk, target < 2TB	The signature will be the same as the source disk in the image