PS2 HL decals like PC ones have support for MIPs, which are switched accordingly to a distance from the point of view (longer distance – lower resolution MIP map is used). This helps to both image quality improvements (reduced shimmering) and performance savings. However, there are some aspects that differ PS2 Half-life decals from PC decals:

1) PS2 HL decal palette contains color data in all elements (full support for multi-color decals).
2) Transparency is defined by an alpha channel instead of palette tricks used in PC version.

PS2 Half-life Decal (PHD) general file structure is shown on fig. 1.

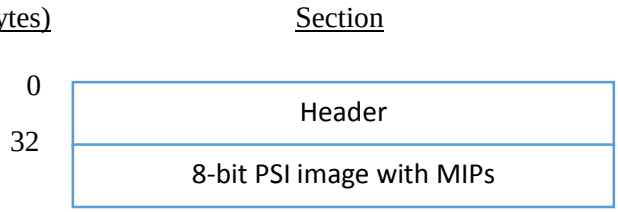

Fig. 1

Structure of PHD header:

```
struct sPHDHeader
{
	char Signature[64];		// Filled with zeroes
}
```

Dimensions of PSI images inside PHDs are limited to power of two sizes: (8, 16, 32, 64, 128, 256, etc.). If input image has different dimensions then it should be rescaled and upscale target should be set to the original image size. If decal has wrong dimensions then it can cause partial game graphics corruption or wrong appearance of decal.

Smallest MIP in PSI image should have at least one side equal to 8.

Number of MIPs and their size can be calculated like that:

```
int a = ImageWidth;
int b = ImageHeight;
int MIPCount = 0;
int MIPSize = 0;
while (a > 8 && b > 8)
{
	a /= 2;
	b /= 2;
	MIPSize += (a * b);
	MIPCount++;
}
```

Dimensions of specific MIP map can be calculated like that:

```
int MIPWidth = ImageWidth >> MIPNumber;
int MIPHeight = ImageHeight >> MIPNumber;
```

2 Example

Structure of 64*64 “{biohaz” PHD with 3 MIPs is shown on fig. 2. Graphical representation is shown on fig. 3.

Offset (bytes)	Section
0	PHD header
64	PSI image header
96	Palette
1120	Image bitmap (64*64)
5216	MIP 1 bitmap (32*32)
6240	MIP 2 bitmap (16*16)
6496	MIP 3 bitmap (8*8)
6560	

Fig. 2 – Example PHD file structure

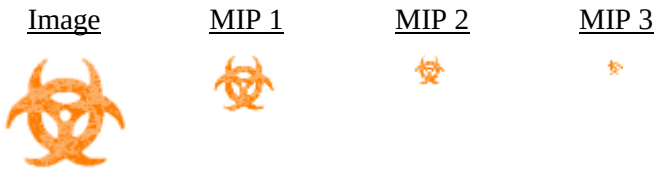

Fig. 3 – Graphical representation