

UNRAVEL ASPECT RATIO CHEAT SHEET v2.3

Calculating out the required resolutions for particular aspect ratios can be a little tricky so we've created a cheat sheet to help simplify this process. Below are the resolutions to use when exporting content for various aspect ratios and frame sizes. If you spot any faults or have any suggestions for updated versions, please let us know.

Latest version is available at unravel.com.au/aspect-ratio-cheat-sheet

Note: Many people refer to 2.35:1, 2.39:1 and 2.40:1 but these days they are usually all referencing the 2.39:1 aspect ratio. 2.35:1 was used in films prior to 1970 and 2.40:1 is an incorrect rounding from 2.39:1 to 2.40:1. Having said this, there are times when delivering at 2.40:1 is actually required rather than 2.39:1 - Blu-Ray's spec for scope content is one example. As a result - all variants are included in this document. When it comes to anything between 2.35-2.44 we find it's best to look at your target destination and run with their predefined spec. (i.e. Blu-Ray is 1920x800, 2KDCP is 2048x858, 4KDCP is 4096x1716 etc.). It always pays to check what your destination is expecting to receive from you rather than trying to convince them you have it the right way round! 2.39 aspect ratios have been calculated based on Digital Cinema Scope 2.39 aspect ratio which is actually $2048/858 = 2.386946386946387$. This has been done for pragmatic reasons as we assume that most that are targeting a strict 2.39 ratio are doing this to match a Scope aspect ratio in cinema.

From version 2.2 onward, all ratios that don't divide perfectly have been rounded down to their closest even integer. This has been done to better support field encoding, codec requirements and general sanity. Value's have been rounded down rather than up so that image data is never caught halfway between framing and blanking. I.e. It's better to crop imagery slightly than to have pixels only extending partially into a new line.

Cinema DCP 4K

Aspect Ratio	Resolution
Flat (1.85)	3996 x 2160
Scope (2.39)	4096 x 1716
Full Container (1.90)	4096 x 2160

Cinema DCP 2K

Aspect Ratio	Resolution
Flat (1.85)	1998 x 1080
Scope (2.39)	2048 x 858
Full Container (1.90)	2048 x 1080

8K

Aspect Ratio	Resolution
1.33 (4:3)	8192 x 6144
1.37 (Academy)	8192 x 5956
1.66 (5:3)	8192 x 4914
1.78 (16:9)	8192 x 4608
1.85	8192 x 4428
1.90	8192 x 4320
2.00	8192 x 4096
2.35	8192 x 3486
2.37	8192 x 3456
2.39 (DCI Scope)	8192 x 3432
2.40	8192 x 3412
2.44	8192 x 3356

8K - UHD

Aspect Ratio	Resolution
1.33 (4:3)	7680 x 5760
1.37 (Academy)	7680 x 5584
1.66 (5:3)	7680 x 4608
1.78 (16:9)	7680 x 4320
1.85	7680 x 4150
1.90	7680 x 4042
2.00	7680 x 3840
2.35	7680 x 3268
2.37	7680 x 3240
2.39 (DCI Scope)	7680 x 3216
2.40	7680 x 3200
2.44	7680 x 3146

6K

Aspect Ratio	Resolution
1.33 (4:3)	6144 x 4608
1.37 (Academy)	6144 x 4468
1.66 (5:3)	6144 x 3686
1.78 (16:9)	6144 x 3456
1.85	6144 x 3320
1.90	6144 x 3232
2.00	6144 x 3072
2.35	6144 x 2614
2.37	6144 x 2592
2.39 (DCI Scope)	6144 x 2574
2.40	6144 x 2560
2.44	6144 x 2518

5K

Aspect Ratio	Resolution
1.33 (4:3)	5120 x 3840
1.37 (Academy)	5120 x 3722
1.66 (5:3)	5120 x 3072
1.78 (16:9)	5120 x 2880
1.85	5120 x 2766
1.90	5120 x 2700
2.00	5120 x 2560
2.35	5120 x 2178
2.37	5120 x 2160
2.39 (DCI Scope)	5120 x 2144
2.40	5120 x 2132
2.44	5120 x 2098

4K

Aspect Ratio	Resolution
1.33 (4:3)	4096 x 3072
1.37 (Academy)	4096 x 2978
1.66 (5:3)	4096 x 2456
1.78 (16:9)	4096 x 2304
1.85	4096 x 2214
1.90	4096 x 2160
2.00	4096 x 2048
2.35	4096 x 1742
2.37	4096 x 1728
2.39 (DCI Scope)	4096 x 1716
2.40	4096 x 1706
2.44	4096 x 1678

4K - UHD

Aspect Ratio	Resolution
1.33 (4:3)	3840 x 2880
1.37 (Academy)	3840 x 2792
1.66 (5:3)	3840 x 2304
1.78 (16:9)	3840 x 2160
1.85	3840 x 2074
1.90	3840 x 2020
2.00	3840 x 1920
2.35	3840 x 1634
2.37	3840 x 1620
2.39 (DCI Scope)	3840 x 1608
2.40	3840 x 1600
2.44	3840 x 1572

3K

Aspect Ratio	Resolution
1.33 (4:3)	3072 x 2304
1.37 (Academy)	3072 x 2234
1.66 (5:3)	3072 x 1842
1.78 (16:9)	3072 x 1728
1.85	3072 x 1660
1.90	3072 x 1620
2.00	3072 x 1536
2.35	3072 x 1306
2.37	3072 x 1296
2.39 (DCI Scope)	3072 x 1286
2.40	3072 x 1280
2.44	3072 x 1258

2K

Aspect Ratio	Resolution
1.33 (4:3)	2048 x 1536
1.37 (Academy)	2048 x 1488
1.66 (5:3)	2048 x 1228
1.78 (16:9)	2048 x 1152
1.85	2048 x 1106
1.90	2048 x 1078
2.00	2048 x 1024
2.35	2048 x 870
2.37	2048 x 864
2.39 (DCI Scope)	2048 x 858
2.40	2048 x 852
2.44	2048 x 838

1080p

Aspect Ratio	Resolution
1.33 (4:3)	1920 x 1440
1.37 (Academy)	1920 x 1396
1.66 (5:3)	1920 x 1152
1.78 (16:9)	1920 x 1080
1.85	1920 x 1036
1.90	1920 x 1010
2.00	1920 x 960
2.35	1920 x 816
2.37	1920 x 810
2.39 (DCI Scope)	1920 x 804
2.40 (Blu-Ray Scope)	1920 x 800
2.44	1920 x 786

720p

Aspect Ratio	Resolution
1.33 (4:3)	1280 x 962
1.37 (Academy)	1280 x 930
1.66 (5:3)	1280 x 768
1.78 (16:9)	1280 x 720
1.85	1280 x 690
1.90	1280 x 672
2.00	1280 x 640
2.35	1280 x 544
2.37	1280 x 540
2.39 (DCI Scope)	1280 x 536
2.40 (Blu-Ray Scope)	1280 x 532
2.44	1280 x 524

576p (PAL Standard Definition)

Aspect Ratio	Resolution (Square Pixels 1.0)	Resolution (PAL Widescreen 1.46 Pixel Aspect Ratio)	Resolution (PAL DV 1.09 Pixel Aspect Ratio)
1.33 (4:3)	768 x 576	--	720 x 576
1.78 (16:9)	1024 x 576	720 x 576	--

480p (NTSC DV SD)

Aspect Ratio	Resolution (Square Pixels 1.0)	Resolution (PAL Widescreen 1.46 Pixel Aspect Ratio)	Resolution (PAL DV 1.09 Pixel Aspect Ratio)
1.33 (4:3)	640 x 480	--	720 x 480
1.78 (16:9)	853 x 480	720 x 480	--

480p (NTSC D1 SD)

Aspect Ratio	Resolution (Square Pixels 1.0)	Resolution (PAL Widescreen 1.46 Pixel Aspect Ratio)	Resolution (PAL DV 1.09 Pixel Aspect Ratio)
1.33 (4:3)	648 x 486	--	720 x 486
1.78 (16:9)	864 x 486	720 x 486	--