

Herb 1

Processing Report
16 April 2018



Survey Data

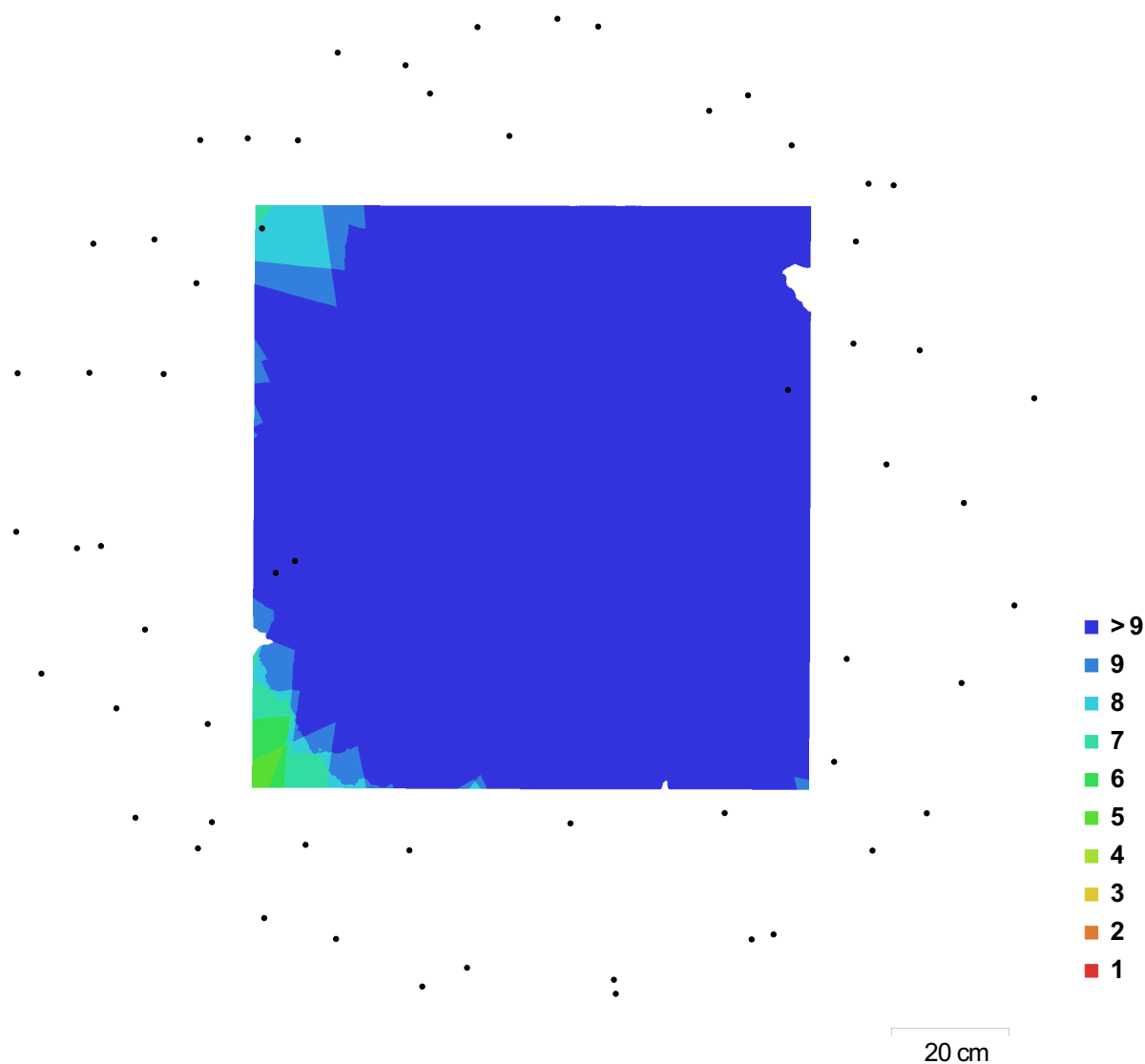


Fig. 1. Camera locations and image overlap.

Number of images:	59	Camera stations:	59
Flying altitude:	1.03 m	Tie points:	25,607
Ground resolution:	0.226 mm/pix	Projections:	148,255
Coverage area:	3.12 sq m	Reprojection error:	0.164 pix

Camera Model	Resolution	Focal Length	Pixel Size	Precalibrated
Canon EOS 1200D (30 mm)	5184 x 3456	30 mm	4.4 x 4.4 um	No
Canon EOS 1200D (42 mm)	5184 x 3456	42 mm	4.4 x 4.4 um	No
Canon EOS 1200D (33 mm)	5184 x 3456	33 mm	4.4 x 4.4 um	No

Table 1. Cameras.

Camera Calibration

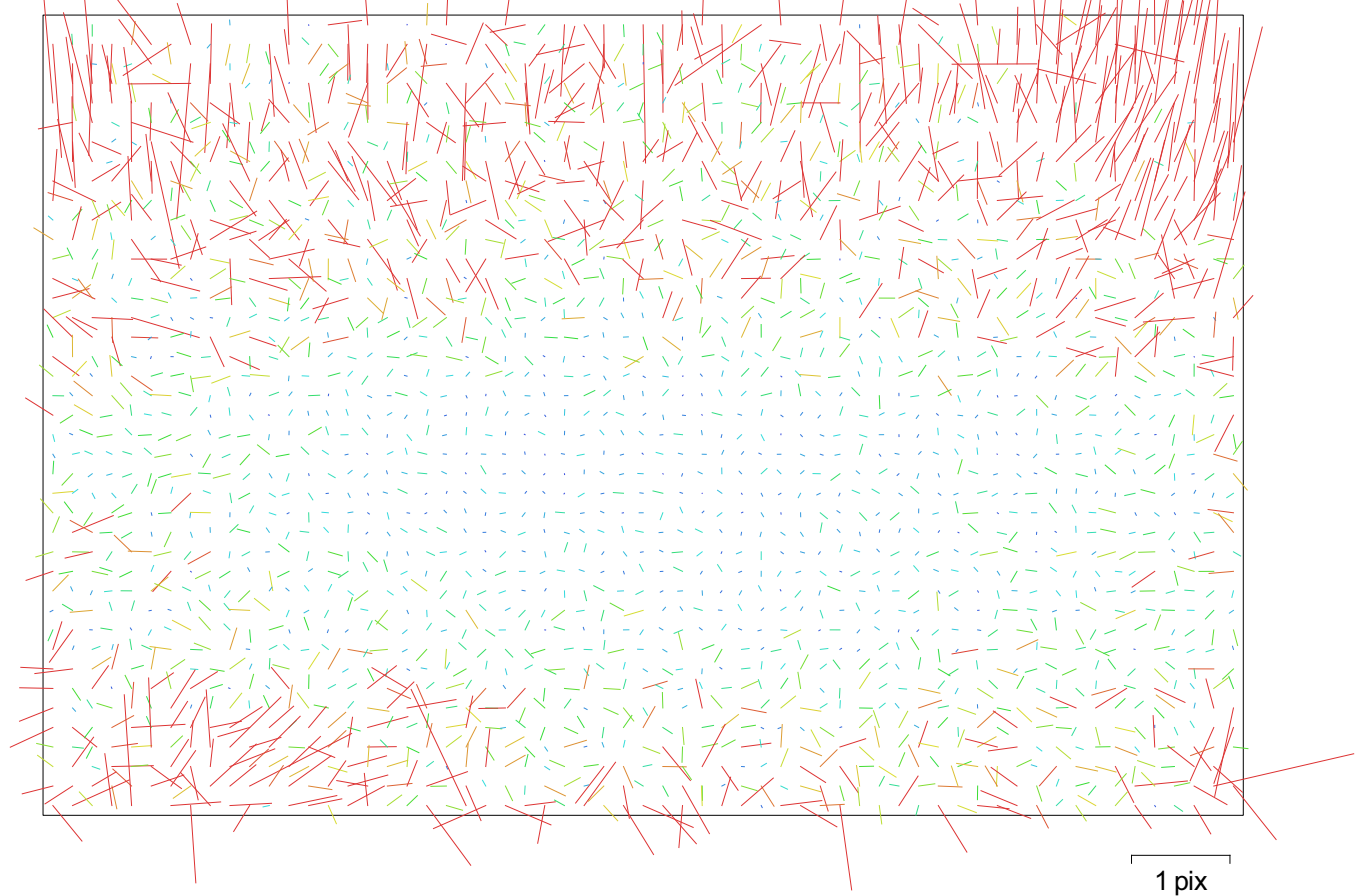


Fig. 2. Image residuals for Canon EOS 1200D (30 mm).

Canon EOS 1200D (30 mm)

Resolution	Focal Length	Pixel Size	Precalibrated
5184 x 3456	30 mm	4.4 x 4.4 μ m	No
Type:	Frame	K1:	-0.0758976
Fx:	7068.9	K2:	0.184146
Fy:	7068.9	K3:	0.0212323
Cx:	2668.58	K4:	0
Cy:	1722.53	P1:	0.0024514
Skew:	0	P2:	0.000232456

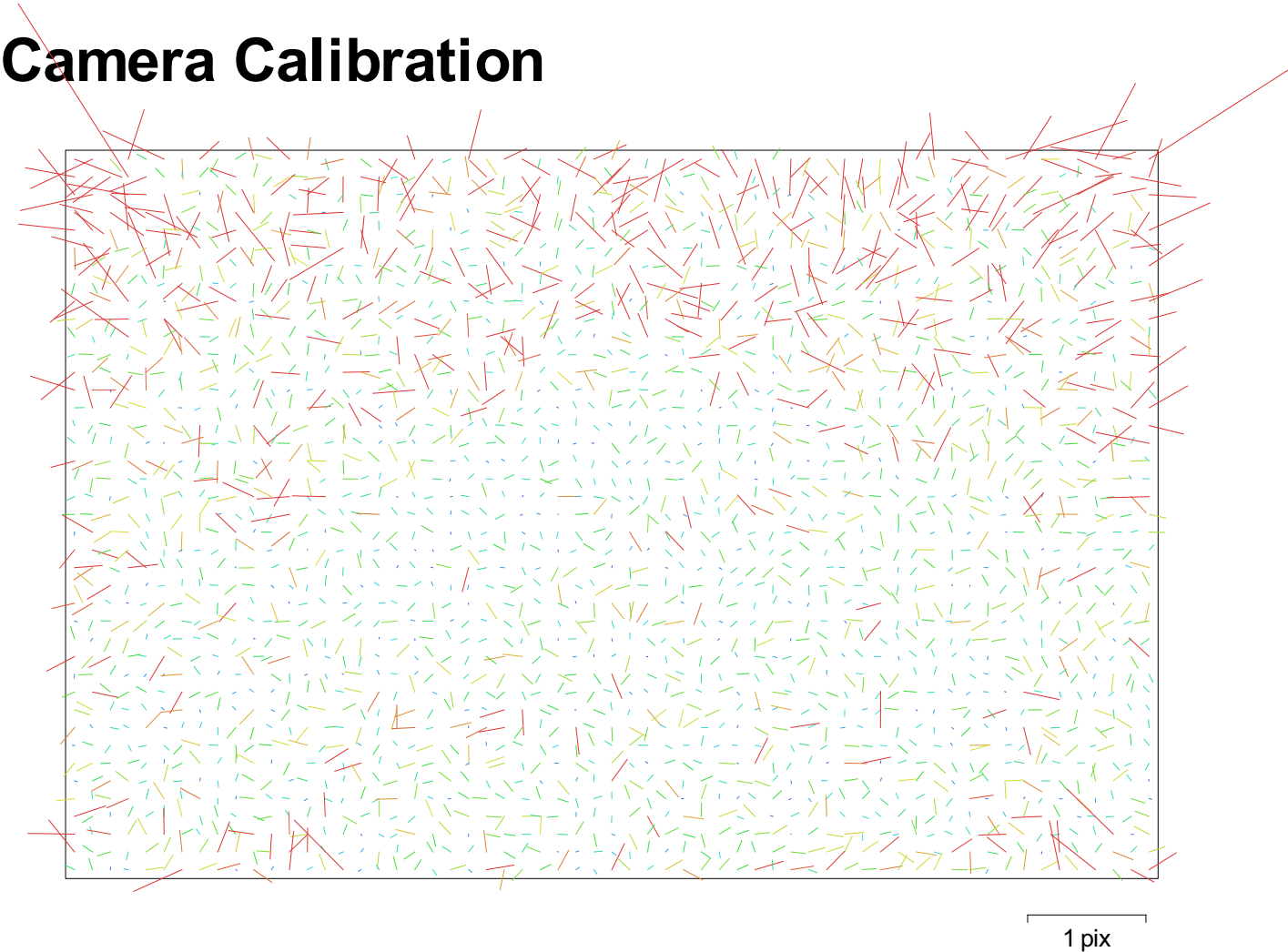


Fig. 3. Image residuals for Canon EOS 1200D (42 mm).

Canon EOS 1200D (42 mm)

Resolution	Focal Length	Pixel Size	Precalibrated
5184 x 3456	42 mm	4.4 x 4.4 um	No
Type:	Frame	K1:	0.0096634
Fx:	9740.95	K2:	0.082898
Fy:	9740.95	K3:	1.01226
Cx:	2640.29	K4:	0
Cy:	1729.06	P1:	0.00324634
Skew:	0	P2:	-0.000489685

Camera Calibration

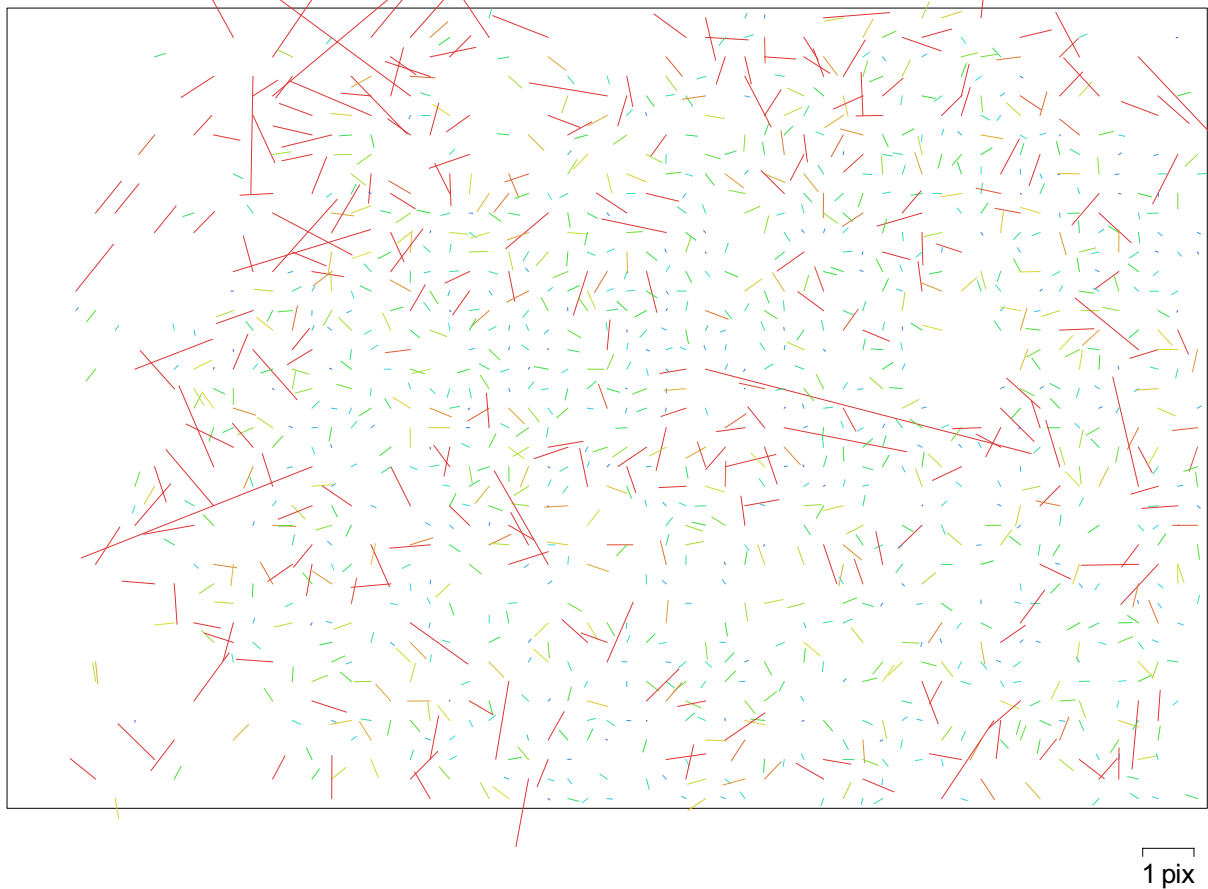


Fig. 4. Image residuals for Canon EOS 1200D (33 mm).

Canon EOS 1200D (33 mm)

Resolution	Focal Length	Pixel Size	Precalibrated
5184 x 3456	33 mm	4.4 x 4.4 μ m	No
Type:	Frame	K1:	-0.05493
Fx:	7689.28	K2:	0.216014
Fy:	7689.28	K3:	-0.190295
Cx:	2663.17	K4:	0
Cy:	1720.85	P1:	0.00262001
Skew:	0	P2:	0.000203161

Ground Control Points

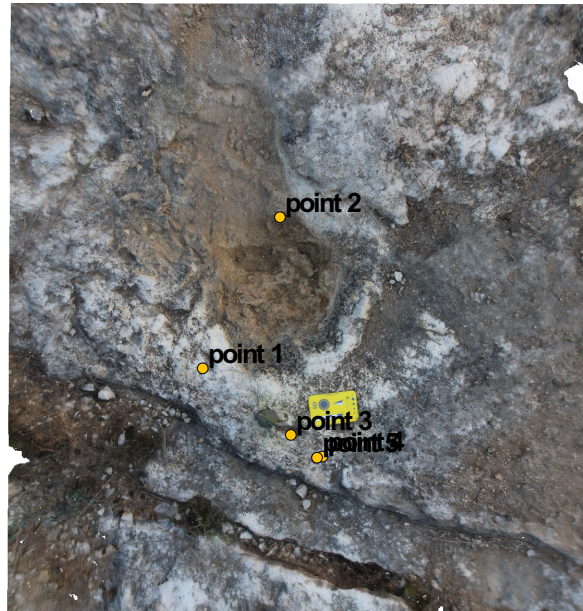


Fig. 5. GCP locations.

Label	X error (m)	Y error (m)	Z error (m)	Error (m)	Projections	Error (pix)
point 1	-0.575928	0.292191	3.80205e-09	0.645809	59	8.60992e-05
point 2	0.292191	-0.477544	2.8824e-09	0.559843	59	8.25098e-05
point 3	0.283737	0.185353	5.10903e-10	0.338914	56	8.44824e-05
Total	0.407257	0.34048	2.77037e-09	0.530835		8.43747e-05

Table 2. Control points.

Label	X error (m)	Y error (m)	Z error (m)	Error (m)	Projections	Error (pix)
point 4					53	9.74806e-05
point 5					55	9.29282e-05

Label	X error (m)	Y error (m)	Z error (m)	Error (m)	Projections	Error (pix)
Total						

Table 3. Check points.

Digital Elevation Model

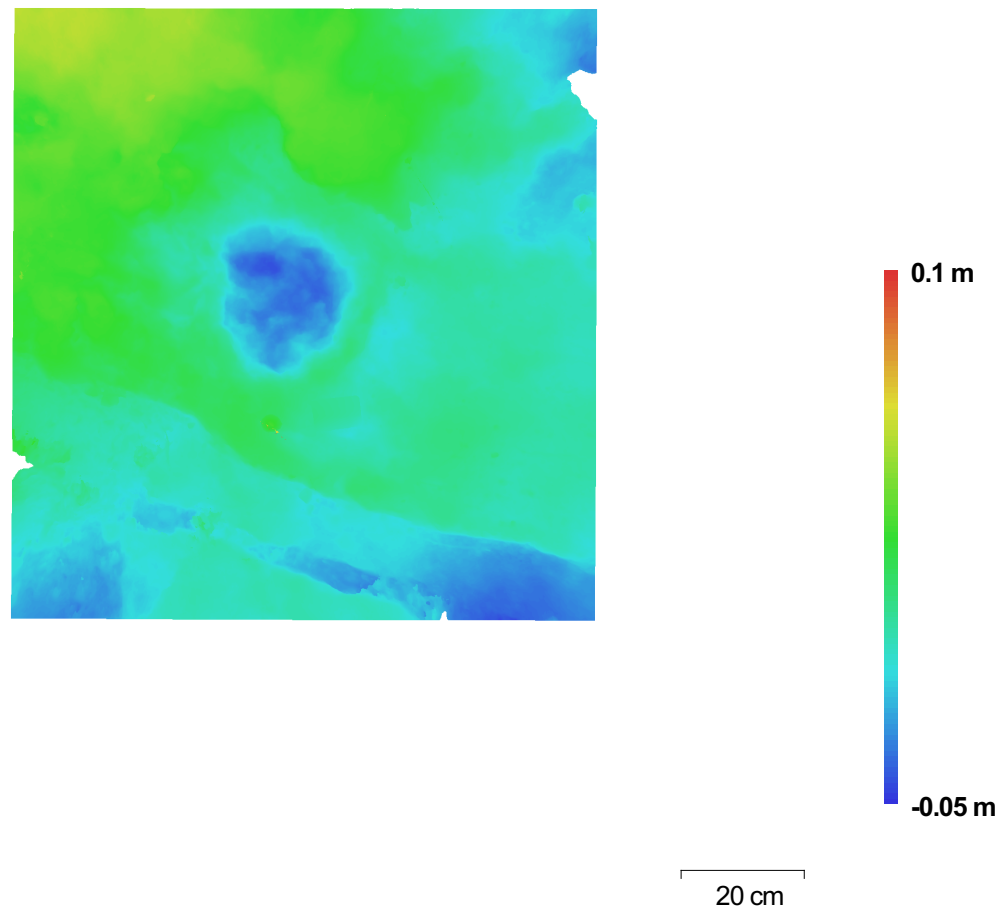


Fig. 6. Reconstructed digital elevation model.

Resolution: 0.251 mm/pix
Point density: 1.58422e+07 points per sq m

Processing Parameters

General

Cameras	59
Aligned cameras	59
Markers	5
Scale bars	1

Point Cloud

Points	25,607 of 36,405
RMS reprojection error	0.164158 (0.88357 pix)
Max reprojection error	0.708124 (4.19858 pix)
Mean key point size	4.77269 pix
Effective overlap	6.45041

Alignment parameters

Accuracy	High
Pair preselection	Disabled
Key point limit	40,000
Tie point limit	4,000
Constrain features by mask	No
Matching time	28 minutes 8 seconds
Alignment time	38 seconds

Dense Point Cloud

Points	16,138,263
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Reconstruction parameters

Quality	High
Depth filtering	Moderate
Processing time	1 hours 44 minutes

Model

Faces	3,227,608
Vertices	1,617,598
Texture	4,096 x 4,096, uint8

Reconstruction parameters

Surface type	Arbitrary
Source data	Dense
Interpolation	Enabled
Quality	High
Depth filtering	Moderate
Face count	3,227,609
Processing time	57 minutes 43 seconds

Texturing parameters

Mapping mode	Generic
Blending mode	Mosaic
Texture size	4,096 x 4,096
UV mapping time	4 minutes 23 seconds
Blending time	2 minutes 22 seconds

DEM

Size	4873x4846
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