



COMTM SUR

the missing piece of CCTV

COM-SURTM EMPOWERS PEOPLE TO ACHIEVE
OPTIMAL OUTCOMES FROM SURVEILLANCE VIDEO,
LEADING TO A SAFER WORLD.



**COM-SUR'S
SCREENSHOTS'
STORAGE SIZE**

SIZE OF THE SCREENSHOTS WHEN CAPTURED AT EVERY
ONE SECOND

Cameras Displayed in a 'Window'	File size Per Screenshot	Storage size requirements	
		For 1 day	For 30 days
1	175 KB	14.5 GB	435 GB
4	250 KB	21.0 GB	630 GB
9	275 KB	23.0 GB	690 GB
16	300 KB	25.0 GB	750 GB

Notes:

1. Please see the explanation of a 'Window' on the following page. The more the number of cameras in one 'Window', the lesser is the overall requirement for storage.
2. Depending on the number of cameras captured in a 'Window', the size of each screenshot would be in the range of approximately 175 KB - 300 KB. However, other criteria such as image complexity, screen resolution, etc. may affect the size to some extent.
3. If the user captures screenshots at an interval of **TWO seconds** instead of ONE second, the data size will **reduce by 50%**, without compromising too much on the fidelity of the data.
4. Comparisons have been made for **4K IP**, **2MP IP**, and **D1 analog** cameras. Compression of H.264 and H.265 has been considered. Various calculators have been used to make the comparisons.

EXPLAINING A 'WINDOW'

A 'Window' is essentially the display input that brings forth, and shows the user the video feed on a monitor.

A 'Window' can be that of a VMS/Browser/Media Player.

The number of cameras per 'Window' are user-defined; for example: 1, 4, 9, 16, 25, 32



TYPICAL SET UP

Typically, operators view diverse cameras using 3 to 4 monitors.



COMPARISON BETWEEN COM-SUR (SCREENSHOTS DATA SIZE) AND **4K IP CAMERAS** (VIDEO DATA SIZE):

COMPRESSION	H.264 - 4K IP CAMERAS – PER 'WINDOW'				H.265 - 4K IP CAMERAS – PER 'WINDOW'			
CALCULATOR	1 CAM	4 CAMS	9 CAMS	16 CAMS	1 CAM	4 CAMS	9 CAMS	16 CAMS
WD – 1 DAY – VIDEO SIZE	658 GB	2.63 TB	5.92 TB	10.53 TB	248 GB	992 GB	2.23 TB	3.97 TB
WD – 30 DAYS – VIDEO SIZE	19.74 TB	78.97 TB	177.69 TB	315.90 TB	7.44 TB	29.76 TB	66.97 TB	119.07 TB
COM-SUR - 1 DAY – SCREENSHOTS SIZE	14.5 GB	21 GB	23 GB	25 GB	14.5 GB	21 GB	23 GB	25 GB
COM-SUR - 30 DAYS - SCREENSHOTS SIZE	435 GB	630 GB	690 GB	750 GB	435 GB	630 GB	690 GB	750 GB
PANASONIC – 1 DAY – VIDEO SIZE	315 GB	1.26 TB	2.83 TB	5 TB	157.49 GB	630 GB	1.42 TB	2.52 TB
PANASONIC – 30 DAYS – VIDEO SIZE	9.44 TB	37.79 TB	85.04 TB	151.19 TB	4.73 TB	18.90 TB	42.52 TB	75.60 TB
COM-SUR - 1 DAY – SCREENSHOTS SIZE	14.5 GB	21 GB	23 GB	25 GB	14.5 GB	21 GB	23 GB	25 GB
COM-SUR - 30 DAYS - SCREENSHOTS SIZE	435 GB	630 GB	690 GB	750 GB	435 GB	630 GB	690 GB	750 GB
SEAGATE – 1 DAY – VIDEO SIZE	199.58 GB	798.32 GB	1.8 TB	3.19 TB	115.72 GB	462.9 GB	1.04 TB	1.85 TB
SEAGATE – 30 DAYS – VIDEO SIZE	5.99 TB	23.95 TB	53.89 TB	95.8 TB	3.47 TB	13.89 TB	31.25 TB	55.55 TB
COM-SUR - 1 DAY – SCREENSHOTS SIZE	14.5 GB	21 GB	23 GB	25 GB	14.5 GB	21 GB	23 GB	25 GB
COM-SUR - 30 DAYS - SCREENSHOTS SIZE	435 GB	630 GB	690 GB	750 GB	435 GB	630 GB	690 GB	750 GB
IPICA (JVSG) – 1 DAY – VIDEO SIZE	207.70 GB	830.70 GB	1.87 TB	3.33 TB	146 GB	582 GB	1.30 TB	2.33 TB
IPICA (JVSG) – 30 DAYS – VIDEO SIZE	6.23 TB	24.92 TB	56.07 TB	99.68 TB	4.36 TB	17.45 TB	39.27 TB	69.81 TB
COM-SUR - 1 DAY – SCREENSHOTS SIZE	14.5 GB	21 GB	23 GB	25 GB	14.5 GB	21 GB	23 GB	25 GB
COM-SUR - 30 DAYS - SCREENSHOTS SIZE	435 GB	630 GB	690 GB	750 GB	435 GB	630 GB	690 GB	750 GB

COMPRESSION	H.264 - 4K IP CAMERAS – PER 'WINDOW'				H.265 - 4K IP CAMERAS – PER 'WINDOW'			
CALCULATOR	1 CAM	4 CAMS	9 CAMS	16 CAMS	1 CAM	4 CAMS	9 CAMS	16 CAMS
CCTVCALCULATOR.NET – 1 DAY – VIDEO SIZE	152.60 GB	610.20 GB	1.34 TB	2.38 TB	113.10 GB	452.40 GB	1 TB	1.77 TB
CCTVCALCULATOR.NET – 30 DAYS – VIDEO SIZE	4.47 TB	17.88 TB	40.23 TB	71.53 TB	3.31 TB	13.25 TB	29.80 TB	53.10 TB
COM-SUR - 1 DAY – SCREENSHOTS SIZE	14.5 GB	21 GB	23 GB	25 GB	14.5 GB	21 GB	23 GB	25 GB
COM-SUR - 30 DAYS - SCREENSHOTS SIZE	435 GB	630 GB	690 GB	750 GB	435 GB	630 GB	690 GB	750 GB
IC REALTIME – 1 DAY – VIDEO SIZE	68.55 GB	274.21 GB	617 GB	1.10 TB	34.60 GB	138.35 GB	311.30 GB	553.40 GB
IC REALTIME – 30 DAYS – VIDEO SIZE	2.06 TB	8.30 TB	18.51 TB	32.91 TB	1.04 TB	4.20 TB	9.34 TB	16.60 TB
COM-SUR - 1 DAY – SCREENSHOTS SIZE	14.5 GB	21 GB	23 GB	25 GB	14.5 GB	21 GB	23 GB	25 GB
COM-SUR - 30 DAYS - SCREENSHOTS SIZE	435 GB	630 GB	690 GB	750 GB	435 GB	630 GB	690 GB	750 GB
CONCLUSION – DATA SIZE REDUCTION BETTER BY FACTOR								
COM-SUR - 1 DAY – SCREENSHOTS SIZE BETTER BY FACTOR	4X – 47X BETTER	13X – 130X BETTER	27X – 270X BETTER	45 X – 436X BETTER	2X – 17X BETTER	7X – 49X BETTER	14X – 100X BETTER	22X – 165X BETTER

COMPARISON BETWEEN COM-SUR (SCREENSHOTS DATA SIZE) AND [2MP IP CAMERAS](#) (VIDEO DATA SIZE):

COMPRESSION	H.264 – 2MP IP CAMERAS – PER 'WINDOW'				H.265 – 2MP IP CAMERAS – PER 'WINDOW'			
CALCULATOR	1 CAM	4 CAMS	9 CAMS	16 CAMS	1 CAM	4 CAMS	9 CAMS	16 CAMS
WD – 1 DAY – VIDEO SIZE	88 GB	351 GB	790 GB	1.40 TB	33 GB	132 GB	298 GB	529 GB
WD – 30 DAYS – VIDEO SIZE	2.63 TB	10.53 TB	23.69 TB	42.12 TB	992 GB	3.97 TB	8.93 TB	15.87 TB
COM-SUR - 1 DAY – SCREENSHOTS SIZE	14.5 GB	21 GB	23 GB	25 GB	14.5 GB	21 GB	23 GB	25 GB
COM-SUR - 30 DAYS - SCREENSHOTS SIZE	435 GB	630 GB	690 GB	750 GB	435 GB	630 GB	690 GB	750 GB
PANASONIC – 1 DAY – VIDEO SIZE	53.46 GB	213.84 GB	481.15 GB	855.38 GB	29.07 GB	116.28 GB	261.63 GB	465.13 GB
PANASONIC – 30 DAYS – VIDEO SIZE	1.60 TB	6.42 TB	14.43 TB	25.66 TB	872.11 GB	3.49 TB	7.85 TB	13.95 TB
COM-SUR - 1 DAY – SCREENSHOTS SIZE	14.5 GB	21 GB	23 GB	25 GB	14.5 GB	21 GB	23 GB	25 GB
COM-SUR - 30 DAYS - SCREENSHOTS SIZE	435 GB	630 GB	690 GB	750 GB	435 GB	630 GB	690 GB	750 GB
SEAGATE – 1 DAY – VIDEO SIZE	52.70 GB	211 GB	474.34 GB	843.26 GB	26.42 GB	106 GB	238 GB	423 GB
SEAGATE – 30 DAYS – VIDEO SIZE	1.58 TB	6.32 TB	14.23 TB	25.30 TB	793 GB	3.17 TB	7.13 TB	12.68 TB
COM-SUR - 1 DAY – SCREENSHOTS SIZE	14.5 GB	21 GB	23 GB	25 GB	14.5 GB	21 GB	23 GB	25 GB
COM-SUR - 30 DAYS - SCREENSHOTS SIZE	435 GB	630 GB	690 GB	750 GB	435 GB	630 GB	690 GB	750 GB
IPICA (JVSG) – 1 DAY – VIDEO SIZE	52 GB	207.20 GB	466.30 GB	829 GB	36.30 GB	145.20 GB	327 GB	581 GB
IPICA (JVSG) – 30 DAYS – VIDEO SIZE	1.55 TB	6.23 TB	14 TB	24.87 TB	1.09 TB	4.36 TB	9.80 TB	17.43 TB
COM-SUR - 1 DAY – SCREENSHOTS SIZE	14.5 GB	21 GB	23 GB	25 GB	14.5 GB	21 GB	23 GB	25 GB
COM-SUR - 30 DAYS - SCREENSHOTS SIZE	435 GB	630 GB	690 GB	750 GB	435 GB	630 GB	690 GB	750 GB

COMPRESSION	H.264 – 2MP IP CAMERAS – PER 'WINDOW'				H.265 – 2MP IP CAMERAS – PER 'WINDOW'			
CALCULATOR	1 CAM	4 CAMS	9 CAMS	16 CAMS	1 CAM	4 CAMS	9 CAMS	16 CAMS
CCTVCALCULATOR.NET – 1 DAY – VIDEO SIZE	38.10 GB	152.40 GB	343 GB	610.20 GB	28.30 GB	113.20 GB	254.70 GB	452.80 GB
CCTVCALCULATOR.NET – 30 DAYS – VIDEO SIZE	1.12 TB	4.48 TB	10.08 TB	17.92 TB	848 GB	3.32 TB	7.46 TB	13.27 TB
COM-SUR - 1 DAY – SCREENSHOTS SIZE	14.5 GB	21 GB	23 GB	25 GB	14.5 GB	21 GB	23 GB	25 GB
COM-SUR - 30 DAYS - SCREENSHOTS SIZE	435 GB	630 GB	690 GB	750 GB	435 GB	630 GB	690 GB	750 GB
IC REALTIME – 1 DAY – VIDEO SIZE	34.60 GB	138.40 GB	311.40 GB	553.60 GB	17.6 GB	70.42 GB	158.44 GB	282 GB
IC REALTIME – 30 DAYS – VIDEO SIZE	1.04 TB	4.15 TB	9.34 TB	16.60 TB	528.20 GB	2.13 TB	4.75 TB	8.45 TB
COM-SUR - 1 DAY – SCREENSHOTS SIZE	14.5 GB	21 GB	23 GB	25 GB	14.5 GB	21 GB	23 GB	25 GB
COM-SUR - 30 DAYS - SCREENSHOTS SIZE	435 GB	630 GB	690 GB	750 GB	435 GB	630 GB	690 GB	750 GB
CONCLUSION – DATA SIZE REDUCTION BETTER BY FACTOR								
COM-SUR - 1 DAY – SCREENSHOTS SIZE BETTER BY FACTOR	2X – 7 X BETTER	6X – 19X BETTER	13X – 37X BETTER	22X – 62X BETTER	1X – 4X BETTER	3X – 10X BETTER	7X – 20X BETTER	11X – 32X BETTER

COMPARISON BETWEEN COM-SUR (SCREENSHOTS DATA SIZE) AND **D1 ANALOG CAMERAS** (VIDEO DATA SIZE):

COMPRESSION	H.264 – D1 ANALOG CAMERAS – PER 'WINDOW'				H.265 – D1 ANALOG CAMERAS – PER 'WINDOW'			
CALCULATOR	1 CAM	4 CAMS	9 CAMS	16 CAMS	1 CAM	4 CAMS	9 CAMS	16 CAMS
WD – 1 DAY – VIDEO SIZE	14 GB	57 GB	129 GB	229 GB	5 GB	22 GB	49 GB	86 GB
WD – 30 DAYS – VIDEO SIZE	429 GB	1.71 TB	3.86 TB	6.86 TB	162 GB	647 GB	1.45 TB	2.58 TB
COM-SUR - 1 DAY – SCREENSHOTS SIZE	14.5 GB	21 GB	23 GB	25 GB	14.5 GB	21 GB	23 GB	25 GB
COM-SUR - 30 DAYS - SCREENSHOTS SIZE	435 GB	630 GB	690 GB	750 GB	435 GB	630 GB	690 GB	750 GB
IC REALTIME – 1 DAY – VIDEO SIZE	9.11 GB	36.50 GB	82.02 GB	146 GB	4.87 GB	19.50 GB	44 GB	78 GB
IC REALTIME – 30 DAYS – VIDEO SIZE	273.40 GB	1.09 TB	2.46 TB	4.37 TB	146.20 GB	585 GB	1.32 TB	2.34 TB
COM-SUR - 1 DAY – SCREENSHOTS SIZE	14.5 GB	21 GB	23 GB	25 GB	14.5 GB	21 GB	23 GB	25 GB
COM-SUR - 30 DAYS - SCREENSHOTS SIZE	435 GB	630 GB	690 GB	750 GB	435 GB	630 GB	690 GB	750 GB
PANASONIC – 1 DAY – VIDEO SIZE	8.25 GB	33 GB	74.26 GB	132.02 GB	4.20 GB	16.80 GB	37.71 GB	67.05 GB
PANASONIC – 30 DAYS – VIDEO SIZE	248 GB	990.14 GB	2.23 TB	3.96 TB	126 GB	503 GB	1.13 TB	2.01 TB
COM-SUR - 1 DAY – SCREENSHOTS SIZE	14.5 GB	21 GB	23 GB	25 GB	14.5 GB	21 GB	23 GB	25 GB
COM-SUR - 30 DAYS - SCREENSHOTS SIZE	435 GB	630 GB	690 GB	750 GB	435 GB	630 GB	690 GB	750 GB
IPICA (JVSG) – 1 DAY – VIDEO SIZE	7.7 GB	30.80 GB	69.20 GB	123.10 GB	5.40 GB	21.50 GB	48.50 GB	86.10 GB
IPICA (JVSG) – 30 DAYS – VIDEO SIZE	230.70 GB	923 GB	2.08 TB	3.69 TB	161.50 GB	646 GB	1.45 TB	2.58 TB
COM-SUR - 1 DAY – SCREENSHOTS SIZE	14.5 GB	21 GB	23 GB	25 GB	14.5 GB	21 GB	23 GB	25 GB
COM-SUR - 30 DAYS - SCREENSHOTS SIZE	435 GB	630 GB	690 GB	750 GB	435 GB	630 GB	690 GB	750 GB

COMPRESSION	H.264 – D1 ANALOG CAMERAS – PER 'WINDOW'				H.265 – D1 ANALOG CAMERAS – PER 'WINDOW'			
CALCULATOR	1 CAM	4 CAMS	9 CAMS	16 CAMS	1 CAM	4 CAMS	9 CAMS	16 CAMS
CCTVCALCULATOR.NET – 1 DAY – VIDEO SIZE	7.60 GB	30.50 GB	68.60 GB	122 GB	5.70 GB	22.60 GB	50.90 GB	90.50 GB
CCTVCALCULATOR.NET – 30 DAYS – VIDEO SIZE	228.8 GB	915.30 GB	2 TB	3.56 TB	169.60 GB	678.40 GB	1.50 TB	2.70 TB
COM-SUR - 1 DAY – SCREENSHOTS SIZE	14.5 GB	21 GB	23 GB	25 GB	14.5 GB	21 GB	23 GB	25 GB
COM-SUR - 30 DAYS - SCREENSHOTS SIZE	435 GB	630 GB	690 GB	750 GB	435 GB	630 GB	690 GB	750 GB
SEAGATE – 1 DAY – VIDEO SIZE	D1 resolution not available.							
SEAGATE – 30 DAYS – VIDEO SIZE	D1 resolution not available.							
COM-SUR - 1 DAY – SCREENSHOTS SIZE	14.5 GB	21 GB	23 GB	25 GB	14.5 GB	21 GB	23 GB	25 GB
COM-SUR - 30 DAYS - SCREENSHOTS SIZE	435 GB	630 GB	690 GB	750 GB	435 GB	630 GB	690 GB	750 GB
CONCLUSION – DATA SIZE REDUCTION BETTER BY FACTOR								
COM-SUR - 1 DAY – SCREENSHOTS SIZE BETTER BY FACTOR	-	1X – 3X BETTER	3X – 6X BETTER	5X – 10X BETTER	-	-	2X – 3X BETTER	4X – 5X BETTER

Notes:

1. Video data sizes may vary due to several other factors like the bit rate, the amount of motion detected by the camera and so on. Yet the inferences from the above tables are quite representative of the real world.
2. For the above calculations, the screen resolution of the computer monitor has been considered to be 1920x1080 pixels, and the image complexity has been considered to be medium. The size of each screenshot has been considered as the average of the screenshot sizes for day and night (in this case black and white screenshots have been considered) scenes. In case the user has a computer monitor which is set to a higher resolution such as 4K (3840x2160 pixels) or 8K (7680 × 4320 pixels), then the data size of the screenshots would increase accordingly. If the user does not want to store the screenshots with this large data size, then COM-SUR offers a setting which allows him/her to capture the screenshots in a lower resolution (the user can select a desired custom resolution), thereby reducing the data size considerably.

General considerations:

- a) The frame rate for storage has been considered as 24 FPS.
- b) The video quality has been considered as High (100%).
- c) The scene activity/motion has been considered as High (100 %).

Calculators:

1. Western Digital: <https://www.wdc.com/solutions/wd-surveillance-capacity-calculator.html>
2. Panasonic: <https://www.security.us.panasonic.com/storage-and-bandwidth-calculator>
3. Seagate: <https://www.seagate.com/in/en/video-storage-calculator/>
4. IPICA Software (JVSG): <https://www.jvsg.com/storage-bandwidth-calculator/>
5. CCTV Calculator: <https://www.cctvcalculator.net/en/calculations/storage-needs-calculator/>
6. IC Realtime: https://www.icrealtime.com/calculator_storage