



Dell EMC ECS EX-Series

Dell EMC ECS is a software-defined, cloud-scale, object storage platform.

With ECS, any organization can deliver scalable public cloud services with the reliability and control of a private-cloud infrastructure. ECS provides comprehensive protocol support for unstructured—object and file—workloads on a single modern storage platform. Using ECS, organizations can easily manage globally distributed storage infrastructure under a single global namespace with anywhere access to content. ECS features a flexible software-defined architecture that is layered to promote limitless scalability. Each layer is completely abstracted and independently scalable with high availability and no single points of failure. ECS also comes in a fully-integrated turnkey appliance that bundles software and Dell PowerEdge servers into an easily deployed object system.

ECS is currently in its third generation of hardware appliances, the EX-Series, building on the legacy of Dell EMC's Centera and Atmos object storage platforms which predated ECS. The ECS EX-Series is comprised of four unique hardware products: the EX300, EX500, EX3000 and the all-flash EXF900.

ECS EX300	ECS EX500	ECS EX3000	ECS EXF900
			
<p>As a starter edition, the EX300 lowers object storage adoption entry barriers with 60TB starting cluster options.</p> <p>With the capacity to grow to exabyte-scale, this is the ideal sandbox for in-house, cloud-native, mobile and web application storage. It's also the optimal system to modernize existing Centera or Atmos deployments.</p>	<p>The perfect blend of economy and density, the EX500 injects even greater flexibility into the ECS appliance portfolio.</p> <p>With rack capacity ranging from 480TB to 6.1PB, the EX500 is a versatile option for midsized enterprises looking to support either modern application or deep archive use cases.</p>	<p>A high density, hot disk-swappable, object storage system, the EX3000 packs up to 11.5PB per rack and can grow into exabyte-scale with ease.</p> <p>It's an ideal platform for long-term retention, storage consolidation and multi-purpose object storage requirements that span S3, HDFS and archive workloads.</p>	<p>Built with NVMe-based SSDs on Dell EMC PowerEdge servers, the EXF900 appliance delivers extreme performance at scale for modern workloads such as AI, machine learning, IoT and real-time analytics applications.</p> <p>Capacity begins at 230TB and scales up to 1.47PB per rack.</p>

ECS EX-Series appliance overview

Features	EX300	EX500	EX3000S / EX3000D	EXF900
Node architecture	<ul style="list-style-type: none"> Intel x86 servers Integrated storage 12 disk drives per node 	<ul style="list-style-type: none"> Intel x86 servers Integrated storage 12 or 24 disk drives per node 	<ul style="list-style-type: none"> Intel x86 servers Integrated storage EX3000S: Up to 90 disk drives per node EX3000D: Up to 45 disk drives per node 	<ul style="list-style-type: none"> Intel x86 servers Integrated storage 12 or 24 disk drives per node
Network connectivity	<ul style="list-style-type: none"> 10GbE FrontEnd 10GbE BackEnd 	<ul style="list-style-type: none"> 25GbE FrontEnd 25GbE BackEnd 	<ul style="list-style-type: none"> 25GbE FrontEnd 25GbE BackEnd 	<ul style="list-style-type: none"> 25GbE FrontEnd 25GbE BackEnd

40U rack configurations	<ul style="list-style-type: none"> 1, through 16 node configurations (5 node minimum initial rack) HA power 	<ul style="list-style-type: none"> 1, through 16 node configurations (5 node minimum initial rack) HA power 	<ul style="list-style-type: none"> EX3000S: 1, through 8 node configurations (5 node minimum initial rack) EX3000D: 2, 4, 6, 8, 10, 12, 14 and 16 nodes (6 node minimum initial rack) configurations HA power 	<ul style="list-style-type: none"> 1, through 16 node configurations (5 node minimum initial rack) HA power
Multiple storage configurations	<ul style="list-style-type: none"> Unstructured storage up to 3072TB per rack 	<ul style="list-style-type: none"> Unstructured storage up to 6144TB per rack 	<ul style="list-style-type: none"> Unstructured storage up to 11,520TB per rack 	<ul style="list-style-type: none"> Unstructured storage up to 1474TB per rack

ECS EX-Series appliance details

Features	EX300	EX500	EX3000S / EX3000D	EXF900
Architecture	<ul style="list-style-type: none"> Standard 40U cabinet 2U node containing server and disks Fully accessible – field serviceable Conventional front to back cooling HA power cabling and cooling 	<ul style="list-style-type: none"> Standard 40U cabinet 2U node containing server and disks Fully accessible – field serviceable Conventional front to back cooling HA power cabling and cooling 	<ul style="list-style-type: none"> 40U extra deep cabinet EX3000S: 4U chassis containing one server and disks EX3000D: 4U chassis containing two servers and disks Fully accessible – field serviceable components Conventional front to back cooling HA power cabling and cooling 	<ul style="list-style-type: none"> Standard 40U cabinet 2U node containing server and disks Fully accessible – field serviceable Conventional front to back cooling HA power cabling and cooling
Min / max cluster size	<ul style="list-style-type: none"> 5 node minimum No maximum 	<ul style="list-style-type: none"> 5 node minimum No maximum 	<ul style="list-style-type: none"> Single: 5 node minimum No maximum Dual: 6 node minimum No maximum 	<ul style="list-style-type: none"> 5 node minimum Maximum: 112 nodes
Min / max rack configuration	<ul style="list-style-type: none"> Min: 1 node = 1 server with included disks Max: 16 nodes = 16 servers with included disks 	<ul style="list-style-type: none"> Min: 1 node = 1 server with included disks Max: 16 nodes = 16 servers with included disks 	<ul style="list-style-type: none"> Single: <ul style="list-style-type: none"> Min: 1 chassis = 1 server + disks Max: 8 chassis = 8 servers + disks Dual: <ul style="list-style-type: none"> Min: 1 chassis = 2 servers + disks Max: 8 chassis = 16 servers + disks 	<ul style="list-style-type: none"> Min: 1 node = 1 server with included disks Max: 16 nodes = 16 servers with included disks

Node:disk ratios	<ul style="list-style-type: none"> 1:12 	<ul style="list-style-type: none"> 1:12, 1:24 	<ul style="list-style-type: none"> EX3000S: 1:45, 1:60, 1:90 EX3000D: 1:30, 1:45 	<ul style="list-style-type: none"> 1:12, 1:24
Disk type (7200rpm, SATA)	<ul style="list-style-type: none"> 1TB, 2TB, 4TB, 8TB, 16TB 	<ul style="list-style-type: none"> 8TB, 12TB, 16TB 	<ul style="list-style-type: none"> 12TB, 16TB 	<ul style="list-style-type: none"> 3.84TB (RI NVMe U.2 SSD)
Optional cache SSD	<ul style="list-style-type: none"> Optional SSD (960GB) drive for improved metadata read/write cache performance 			<ul style="list-style-type: none"> N/a
Raw capacity (per node)	<ul style="list-style-type: none"> 12TB, 24TB, 48TB, 96TB, 192TB 	<ul style="list-style-type: none"> 96TB, 144TB, 192TB / 192TB, 288TB, 384TB 	<ul style="list-style-type: none"> 540TB, 720TB, 720TB, 960TB, 1080TB, 1440TB / 360TB, 480TB, 540TB, 720TB 	<ul style="list-style-type: none"> 46TB / 92TB
Max raw capacity (per rack)	<ul style="list-style-type: none"> 192TB, 384TB, 768TB, 1536TB, 3072TB 	<ul style="list-style-type: none"> 3072TB, 4608TB, 6144TB 	<ul style="list-style-type: none"> 8640TB, 11,520TB 	<ul style="list-style-type: none"> 1474TB
Node dimensions	<ul style="list-style-type: none"> 2U x D (715.5 mm) Weight: 33KG (with 12 drives) 	<ul style="list-style-type: none"> 2U x D (810 mm) Weight: 43.2KG (with 24 drives) 	<ul style="list-style-type: none"> 4U x D (1098.4 mm) Weight: 134 KG (with 90 drives) 	<ul style="list-style-type: none"> 2U x D (715.5 mm) Weight: 48lbs (with 12 drives) 52.5lbs (with 24 drives)
Rack dimensions	<ul style="list-style-type: none"> H(75") x W(24") x D(47") + 4" for front door H(1905mm) x W(610mm) x D(1194mm) Weight: 887kg/1955lb with 4 switches, 16 2U nodes 	<ul style="list-style-type: none"> H(75") x W(24") x D(47") + 4" for front door H(1905mm) x W(610mm) x D(1194mm) Weight: 887kg/1955lb with 4 switches, 16 2U nodes 	<ul style="list-style-type: none"> H(75") x W(24") x D(53") + 4" for front door H(1903mm) x W(607mm) x D(1334mm) Weight: 1352kg/2980lb with 4 switches, 8 4U chassis 	<ul style="list-style-type: none"> H(75") x W(24") x D(47") + 4" for front door H(1905mm) x W(610mm) x D(1194mm) Weight: 887kg/1955lb with 4 switches, 16 2U nodes
Max power	<ul style="list-style-type: none"> 0.29 kVA per 2U node 	<ul style="list-style-type: none"> .72 kVA per 2U node 	<ul style="list-style-type: none"> 1.35 kVA per 4U chassis 	<ul style="list-style-type: none"> 1.086 kVA per 2U node
Max heatload	<ul style="list-style-type: none"> 800 Btu/Hr for every 2U node 	<ul style="list-style-type: none"> 2400 Btu/Hr for every 2U node 	<ul style="list-style-type: none"> 4500 Btu/Hr for every 4U chassis 	<ul style="list-style-type: none"> 3706 BTU/Hr for every 2U node
Power specifications (server)	<ul style="list-style-type: none"> 2X750W power supplies per node (HA) 	<ul style="list-style-type: none"> 2X1100W power supplies per node (HA) 	<ul style="list-style-type: none"> 2X1100W (EX3000S) power supplies per node (HA) 2x1600W (EX3000D) 	<ul style="list-style-type: none"> 2X1100W power supplies per node (HA)
Power specifications (rack)	<ul style="list-style-type: none"> Connection: 4 single phase L6-30 (redundant power) <ul style="list-style-type: none"> 32A circuit breaker (A) max. per AC power source 2 three-phase WYE S52.30 (redundant power) 	<ul style="list-style-type: none"> Connection: 6 single phase L6-30 (redundant power) <ul style="list-style-type: none"> 32A circuit breaker (A) max. per AC power source 2 three-phase WYE S52.30 (redundant power) 	<ul style="list-style-type: none"> Connection: 6 single phase L6-30 (redundant power) <ul style="list-style-type: none"> 32A circuit breaker (A) max. per AC power source 2 three-phase WYE S52.30 (redundant power) 	<ul style="list-style-type: none"> Connection: 8 single phase L6-30 (redundant power) <ul style="list-style-type: none"> 32A circuit breaker (A) max. per AC power source 4 three-phase WYE S52.30 (redundant power)

	<ul style="list-style-type: none"> 32A circuit breaker (A) max. per AC power source 2 three-phase delta CS-8365C (redundant power) <ul style="list-style-type: none"> 50A circuit breaker (A) max. per AC power source Input voltage (VAC): 200-240 Frequency (Hz): 50 - 60 	<ul style="list-style-type: none"> 32A circuit breaker (A) max. per AC power source 2 three-phase delta CS-8365C (redundant power) <ul style="list-style-type: none"> 50A circuit breaker (A) max. per AC power source Input voltage (VAC): 200-240 Frequency (Hz): 50 - 60 	<ul style="list-style-type: none"> 32A circuit breaker (A) max. per AC power source 2 three-phase delta CS-8365C (redundant power) <ul style="list-style-type: none"> 50A circuit breaker (A) max. per AC power source Input voltage (VAC): 200-240 Frequency (Hz): 50 - 60 	<ul style="list-style-type: none"> 32A circuit breaker (A) max. per AC power source 4 three-phase delta CS-8365C (redundant power) <ul style="list-style-type: none"> 50A circuit breaker (A) max. per AC power source Input voltage (VAC): 200-240 Frequency (Hz): 50 - 60
Connectivity	<ul style="list-style-type: none"> Uplink connectivity: up to 16x10 GbE, 16x25 GbE, 8x40GbE or 8x100GbE uplinks to customer network (800 Gb/s maximum bandwidth), including high availability configuration Network: dual 25 GbE front end switches and dual 25 GbE back end switches (internal traffic) per rack 			
Backend aggregation switches	N/a		Yes	
Environmental specifications	<ul style="list-style-type: none"> Operating temperature (°F/°C): 41 - 90/ 5 - 32 Max. altitude: 7,500 ft/ 2,286 m @ 90°F/32°C Relative humidity: 20 - 80% non-condensing Raised floor: not required 			
Upgrade options	<ul style="list-style-type: none"> Scale out by additional nodes only 	<ul style="list-style-type: none"> Scale out by additional nodes 12 drive capacity upgrade kit 	<ul style="list-style-type: none"> Scale out by additional nodes 15 drive capacity upgrade kit 	<ul style="list-style-type: none"> Scale out by additional nodes 12 drive capacity upgrade kit



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