


Dell ECS EX-Series

Dell ECS is an enterprise-grade, 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 the EMC Centera and Atmos object storage platforms that predated ECS. The ECS EX-Series is comprised of three unique hardware products: EX500, EX5000 and the all-flash EXF900.

ECS EX500	ECS EX5000	ECS EXF900
		
<p>The perfect blend of economy and density, the EX500 is a versatile option for midsized enterprises looking to support either modern application or deep archive use cases.</p> <p>It's the ideal sandbox for in-house, cloud-native, mobile and web application storage. Rack capacity ranges from 120TB to 7.68PB.</p>	<p>A high density, hot disk-swappable, object storage system, the EX5000 packs up to 14.0PB 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 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 5.898PB per rack.</p>

Features	EX500	EX5000	EXF900
Node architecture	<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 Up to 100 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"> 25GbE FrontEnd 25GbE BackEnd 	<ul style="list-style-type: none"> 25GbE FrontEnd 25GbE BackEnd 	<ul style="list-style-type: none"> 25GbE FrontEnd 25GbE BackEnd
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"> EX5000S: 1, through 7 node configurations (5 node minimum initial rack) EX5000D: 2, through 14 node configurations (8 node minimum initial rack) HA power 	<ul style="list-style-type: none"> 1, through 16 node configurations (5 node minimum initial rack) HA power
Storage configurations	<ul style="list-style-type: none"> Unstructured storage up to 7680TB per rack 	<ul style="list-style-type: none"> Unstructured storage up to 14,000TB per rack 	<ul style="list-style-type: none"> Unstructured storage up to 5898TB per rack

ECS EX-Series appliance details

Features	EX500	EX5000	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"> Titan S standard 42U cabinet EX5000S: 5U chassis containing server and disks EX5000D: 5U chassis containing server 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"> Single: 5 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 	<p>Single:</p> <ul style="list-style-type: none"> Min: 1 chassis = 1 server with included disks Max: 7 chassis = 7 servers with included disks <p>Dual:</p> <ul style="list-style-type: none"> Min: 1 chassis = 1 server with included disks Max: 7 chassis = 7 servers with included disks (14 nodes per 42U rack) 	<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, 1:24 	<ul style="list-style-type: none"> EX5000S: 1:25, 1:50, 1:75, 1:100 EX5000D: 1:25, 1:50 	<ul style="list-style-type: none"> 1:12, 1:24
Disk type (7200rpm, SATA)	<ul style="list-style-type: none"> 2TB, 4TB, 8TB, 12TB, 16TB, 20TB 	<ul style="list-style-type: none"> 16TB, 20TB 	<ul style="list-style-type: none"> 3.84TB, 7.68TB, 15.36TB (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"> 24TB, 48TB, 96TB, 144TB, 192TB, 288TB, 384TB, 480TB 	<ul style="list-style-type: none"> 2000TB 	<ul style="list-style-type: none"> 46TB / 92TB / 184TB / 368TB
Max raw capacity (per rack)	<ul style="list-style-type: none"> Up to 7680TB 	<ul style="list-style-type: none"> Up to 14,000TB 	<ul style="list-style-type: none"> Up to 5898TB
Node dimensions	<ul style="list-style-type: none"> 2U x D (810 mm) Weight: 43.2KG (with 24 drives) 	<ul style="list-style-type: none"> 5U x D (970.4 mm) with CMA Weight(maximum): 276lbs 	<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) 	<ul style="list-style-type: none"> H(78.4") x W(23.6") x D(47.2") – including the front door Weight: 1179kg/2600lb with 4 switches, 7 5U 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)

	<ul style="list-style-type: none"> Weight: 887kg/1955lb with 4 switches, 16 2U nodes 		<ul style="list-style-type: none"> Weight: 887kg/1955lb with 4 switches, 16 2U nodes
Max power	<ul style="list-style-type: none"> .72 kVA per 2U node 	<ul style="list-style-type: none"> 2.4 kVA per 5U chassis 	<ul style="list-style-type: none"> 1.086 kVA per 2U node
Max heatload	<ul style="list-style-type: none"> 2400 BTU/Hr for every 2U node 	<ul style="list-style-type: none"> 8344 BTU/Hr for every 5U chassis 	<ul style="list-style-type: none"> 3706 BTU/Hr for every 2U node
Power specifications (server)	<ul style="list-style-type: none"> 2X1100W power supplies per node (HA) 	<ul style="list-style-type: none"> 2x2400W power supplies per node (HA) 	<ul style="list-style-type: none"> 2X1100W power supplies per node (HA) 2X1600W power supplies per node
Power specifications (rack)	<ul style="list-style-type: none"> Connection: 4 single phase L6-30 (redundant power) <ul style="list-style-type: none"> 30A circuit breaker (A) max. per AC power source 2 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"> Connection: 8 single phase L6-30 (redundant power) <ul style="list-style-type: none"> 30A circuit breaker (A) max. per AC power source 2 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"> Connection: 8 single phase L6-30 (redundant power) <ul style="list-style-type: none"> 30A circuit breaker (A) max. per AC power source 2 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
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	<ul style="list-style-type: none"> N/A 		<ul style="list-style-type: none"> 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 12 drive capacity upgrade kit 	<ul style="list-style-type: none"> Scale out by additional nodes 25 drive capacity upgrade kit 	<ul style="list-style-type: none"> Scale out by additional nodes 12 drive capacity upgrade kit



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