

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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AUTOSTORE SYSTEM INC.,

Petitioner,

v.

OCADO INNOVATION LIMITED,

Patent Owner

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Case No. IPR2021-00798

U.S. Patent No. 9,796,080

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**REPLY TO PATENT OWNER PRELIMINARY RESPONSE**

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Abbreviations	
Board	Patent Trial and Appeal Board
PTO	United States Patent and Trademark Office
IPR	<i>Inter partes</i> review
Petitioner	Petitioner AutoStore System Inc.
PO	Patent Owner Ocado Innovation Limited
'080 patent	U.S. Patent No. 9,796,080
Challenged Claims	Claims 1–23 of the '080 patent
PHOSITA	Person having ordinary skill in the art
Lert	U.S. Patent No. 9,139,363
Lert Provisional	U.S. Provisional Patent Application No. 61/794,023
Winkler	U.S. Patent 7,097,045
Pet.	Petition for IPR in IPR2021-00798
POPR	PO's Preliminary Response in IPR2021-00798
MPEP	Manual of Patent Examining Procedures
AIA	American Invents Act

**PETITIONER’S EXHIBIT LIST PURSUANT TO 37 C.F.R.  
§§ 42.63(E) & 42.104(B)(5)**

<b>Exhibit No.</b>	<b>Description<sup>1</sup></b>
AS-1001	U.S. Patent No. 9,796,080 (“’080 patent”)
AS-1002	File History for U.S. Patent No. 9,796,080
AS-1003	Declaration of Dr. Stephen Derby (“Derby”)
AS-1004	Curriculum Vitae of Dr. Stephen Derby
AS-1005	U.S. Patent No. 9,139,363 (“Lert”)
AS-1006	U.S. Provisional Patent Application No. 61/794,023 (“Lert Provisional”)
AS-1007	U.S. Patent 7,097,045 (“Winkler”)
AS-1008	International Patent Publication No. 1998/049075 A
AS-1009	International Patent Publication No. 2013/167907 A
AS-1010	United States Department of Labor, Occupational Safety and Health Administration, Ergonomics Overview
AS-1011	Civil Docket in <i>Marine Polymer Technologies, Inc. v. HemCon, Inc.</i> , 1:06-cv-00100 (D.N.H.)
AS-1012	Civil Docket in <i>National Pasteurized Eggs, LLC v. Davidson.</i> , 1:07-cv-00103 (D.N.H.)
AS-1013	U.S. Patent No. 9,334,081 (“’081 patent”)
AS-1014	U.S. Patent Publication No. 2010/0316468

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<sup>1</sup> Descriptions are for convenience only and are not admissions or evidence.

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<b>Exhibit No.</b>	<b>Description<sup>1</sup></b>
AS-1015	U.S. Patent Publication No. 2012/0195720
AS-1016	U.S. Patent Publication No. 2013/0015675
AS-1017	Transcript of August 10, 2021 conference in IPR2021-00798

Pursuant to the Board's August 10, 2021 authorization (AS-1017, 28:21–29:8), Petitioner respectfully submits this Reply to the POPR.

## I. INTRODUCTION

PO's priority challenge fails as a matter of law. Because the '080 patent is an AIA patent, it is subject to the statutory provisions under 35 U.S.C. § 102(d) for determining the effective filing date of prior art. It is *not* subject to the standard set forth in *Dynamic Drinkware* applied by PO. The difference in standards matters materially. Unlike *Dynamic Drinkware*, § 102(d) does *not* require that a provisional application provide an enabling disclosure for the claims of the later-filed non-provisional application. The statute itself, the MPEP and the PTO's guidance are unequivocal in this regard. Because the Lert Provisional is not required as a matter of law to enable the claims of Lert, and the Petition properly established Lert's status as prior art under § 102(d), PO's priority challenge fails.

On claim construction, the claims should be given their plain and ordinary meaning. While PO feigns reliance upon a plain meaning interpretation of claim terms, it advances a significant narrowing of the claim terms to avoid invalidating prior art. PO's hindsight-driven constructions should be rejected, as should all the arguments in the POPR that rely on them.

PO presents no legitimate reason to deny institution. Petitioner thus requests that the Board institute review and cancel all Challenged Claims.

## II. PATENT OWNER'S PRIORITY CHALLENGE FAILS AS A MATTER OF LAW

Under 35 U.S.C. § 102(d), Petitioner is *not* required to show that the Lert Provisional enables a claim of the Lert patent in order for Lert to be prior art.

The Petition contends Lert is prior art under at least AIA 35 U.S.C. § 102(a)(2), and pursuant to § 102(d), Lert is entitled to the effective filing date of the Lert Provisional filed on March 15, 2013. Pet., 11–12. As explained in the Petition, the '080 patent is an AIA patent because it has an earliest effective filing date of June 17, 2013, which is after the AIA effective date of March 16, 2013. Pet., 7, 11 n.3; MPEP § 2159.02. PO does not dispute this. The Examiner too recognized that the '080 patent was an AIA patent. AS-1002, 292 (AIA status as “Yes”); 293, 339.

As an AIA patent, the '080 patent is subject to 35 U.S.C. § 102(d) for determining when prior art subject matter was effectively filed. Section 102(d) states that a prior art patent:

shall be considered to have been effectively filed, with respect to any subject matter *described* in the patent or application ... if the patent or application for patent is entitled to claim a right of priority under section 119 .... as of the filing date of the earliest such application *that describes the subject matter*.

The relevant question under § 102(d) is whether the earlier provisional application *describes* the subject matter in the later filed non-provisional. The Petition satisfied § 102(d) and PO does not contend otherwise. Pet., 12; AS-1003 ¶¶ 58–59.<sup>2</sup>

The requirement that one claim in a non-provisional prior art patent be enabled by the provisional in compliance with § 112 is not applicable where, as here, the patent is subject to the AIA. Aside from the statute itself, the PTO’s guidance is clear on this point. The MPEP says that “35 U.S.C. 102(d) requires that a prior-filed application to which a priority or benefit claim is made must *describe* the subject matter from the U.S. patent document relied upon in a rejection. However, AIA 35 U.S.C. 102(d) does *not require* that this description meet the enablement requirements of 35 U.S.C. 112(a).” MPEP § 2154.01(b). The PTO’s official guidance to the examining corps following *Dynamic Drinkware* likewise recognized that compliance with § 112 “is *not applicable* when examining an application subject to the first inventor to file provisions of the AIA” and that “MPEP § 2154.01(b), and is not affected by *Dynamic Drinkware* ....” Robert W. Bahr, *Dynamic Drinkware-Amgen II memorandum* (April 5, 2018) ([www.uspto.gov/sites/default/files/documents/dynamic\\_memo\\_05apr2018.pdf](http://www.uspto.gov/sites/default/files/documents/dynamic_memo_05apr2018.pdf)).

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<sup>2</sup> Although not required, out of an abundance of caution, the Petition showed that the Lert Provisional discloses support for Lert’s claimed subject matter. Pet., 13–16.

PO's priority attack applies the wrong law. Citing *Dynamic Drinkware*, PO contends, "[t]o prove that Lert is entitled to its provisional filing date, Petitioner must show, among other things, that Lert's provisional *enables* Lert's issued claims." POPR, 16. But the Federal Circuit was clear that *Dynamic Drinkware* did not extend to § 102(d), and thus is not applicable to AIA patents like the '080 patent. *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1382, n.2 (Fed. Cir. 2015) ("[b]ecause we refer to the *pre*-AIA version of § 102, we *do not* interpret here the AIA's impact on Wertheim in newly designated § 102(d)"). PO therefore cannot rely on the *Dynamic Drinkware* standard to attack the priority claim in this IPR. And having offered no challenge under § 102(d), PO's priority challenge fails.

### III. CLAIM CONSTRUCTIONS

Both parties propose that all the claims of the '080 patent should be given their plain and ordinary meaning. Pet., 20; POPR 5, 14. PO, however, advances so-called "plain and ordinary" claim constructions that impermissibly import limitations from the patent's specification in a transparent attempt to limit the claims to avoid Lert. The Board should adopt Petitioner's positions and reject PO's.

#### A. "autonomous vehicles" (Lert, claims 1 and 5)

PO contends that it is "necessary" for the Board to construe "autonomous vehicles" from the Lert patent solely for determining whether "the Lert patent is entitled to the filing date of Lert's provisional application." POPR, 9. Not so. The

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Board does not need to construe terms that are unnecessary to resolve whether to institute IPR. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017). PO’s argument that the Lert Provisional does not enable “autonomous vehicles” fails as a matter of law (*supra* at II), so construction of this term is unnecessary.

To the extent the Board finds it necessary to construe “autonomous vehicles,” it should be given its plain and ordinary meaning, as both parties contend. Pet., 5; POPR, 14. The parties agree that “autonomous vehicles” means vehicles that move essentially outside the control of a human. The core dispute is whether “autonomous vehicles” in Lert requires a vehicle operating outside the control of an “external computer processor.” Petitioner contends it does do not.

The specification supports this. Lert discloses a “Central Control System” (“CCS”) that consists “of software, computers, and network equipment.” AS-1005, 21:53–55; Pet., 9, 27. Importantly, Lert discloses that the CCS manages all of the resources within the system “*including all of the various robots.*” AS-1005, 3:44–50; Pet., 9, 27. Lert further discloses that the CCS “communicate[s] via wired and wireless network interfaces with all of the other active subsystems (*R-Bots, E-Bots, TSS switch-controllers, Workstations, O-Bots, CVC controller, Bot Lift, etc.*).” AS-1005, 21:55–59; Pet., 9–10. Lert also shows that the CCS is located external to the robots in the system. AS-1005, Fig. 2a–2b; Pet. 8. The most natural reading of

Lert's disclosure and the one that aligns with the patent's description of the invention is that all the vehicles in Lert move essentially outside the control of a human since they are controlled by the CCS. *See Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998).

PO contends this term should be construed to include that vehicles must navigate without outside control of an "external computer processor." That construction would "contradict[] [] the patent's specification." *Source Vagabond Sys. v. Hydrapak*, 753 F.3d 1291, 1300 (Fed. Cir. 2014). Lert says that the CCS, a feature located external to the robots, "manages" "**all** of the various robots." AS-1005, 3:44–50; Pet., 9, 27. PO's construction conflicts with that, and would exclude the preferred embodiments too, which is "rarely, if ever, correct." *Vitronics Corp. v. Conceptoronic, Inc.*, 90 F.3d 1576, 1583 (Fed. Cir. 1996). Because "**all** of the various robots" in Lert are managed by the CCS, PO's construction would exclude Lert's embodiment from the claim.

PO's construction is also inconsistent with Mr. Lert's other patents that are cited on the face of Lert. *V-Formation, Inc. v. Benetton Grp. SpA*, 401 F.3d 1307, 1311 (Fed. Cir. 2005) ("prior art cited in a patent or cited in the prosecution history of the patent constitutes intrinsic evidence."). These patents make clear that "autonomous vehicles" do not require that the vehicles operate outside control of an "external computer processor." United States Patent Publication No. 2010/0316468

is entitled “Storage and Retrieval System.” AS-1014, Cover. It says, “[i]n one exemplary embodiment, the storage and retrieval system may include ... a number of *autonomous vehicular* transport robots 110 (referred to herein as ‘*bots*’).” AS-1014 ¶30. It then says, “bots 110 and other suitable features of the storage and retrieval system 100 *may be controlled by*, for example, one or more *central system control computers (e.g. control server)* 120 through, for example, any suitable network 180.” AS-1014 ¶73. Like in Lert, Figure 1 shows that the “control server 120” is external to the “bots.” AS-1014, Fig. 1. Another patent publication naming Mr. Lert as an inventor that is cited on the face of Lert has a similar disclosure. AS-1015 ¶¶25, 29. Because Mr. Lert described autonomous vehicles in these publications in this manner, which are intrinsic evidence, a PHOSITA would understand that autonomous vehicles in Lert can be controlled by an external computer processor.

PO contends that the specification supports its construction because there is a passing reference to “R-Bots running unconstrained on the floor.” PO is wrong. **First**, Lert does not say that “R-Bots running unconstrained on the floor” are “autonomous.” Nor does it say that all the other disclosed robots are not autonomous. In fact, Lert says the opposite. Lert says “the disclosed embodiment” uses “autonomous robotic vehicles.” AS-1005, 2:56–63; Pet., 22. **Second**, nothing in this portion of the specification says that R-Bots operate independently of the CCS,

which is unsurprising since Lert expressly states that the CCS controls “all [] the various robots.” AS-1005, 3:44–50; Pet., 9, 27. PO would have the Board believe that this passage means that robots operate independently of the CCS. But there is no reference to the CCS in that passage at all. And the context of the passage makes clear that the rail-guidance is not essential, meaning R-Bots can move around outside of the guideway network. AS-1005, 8:32–33. *Third*, PO’s argument that vehicles are autonomous because they run “unconstrained on the floor” cannot be reconciled with Lert’s claim language and other parts of the specification, which repeatedly describes “autonomous vehicles” moving “along the guideway network.” AS-1005 at Claims 1, 5, Abstract, 23:11–67.

PO further contends that Lert’s “robotic vehicles” are not the same as “autonomous robotic vehicles” because the specification did not use the word “autonomous” each and every time it refers to a “robotic vehicle.” POPR, 8. PO’s hyper-technical word game is no basis to find that Lert contemplated an entirely separate class of “autonomous robotic vehicles” that are separate from “robotic vehicles.” Indeed, a PHOSITA would not share PO’s understanding because the specification says that the robots used in the embodiment are autonomous. AS-1005, 2:56–63; Pet., 22. Lert then says “the disclosed embodiment [is] generally comprise[d] of eleven elements” which includes R-Bots, O-Bots, and E-Bots. AS-1005 at 3:10-12. The specification describes how the R-Bots, O-Bots, and E-Bots

are under the control of the CCS. *E.g.*, AS-1005, 3:44–50. 21:55–60; Pet., 9–10, 27.

A more logical explanation and one that naturally aligns with Lert’s description is that in Lert, “robotic vehicles” is short for “autonomous robotic vehicles.”

Lastly, PO’s nontechnical dictionary does not support its construction. As an initial matter, the Board does not need to reach dictionary definitions because the meaning of “autonomous vehicles” is clear from the intrinsic evidence, as discussed above. *See e.g., Profectus Tech. LLC v. Huawei Techs. Co.*, 823 F.3d 1375, 1380 (Fed. Cir. 2016). In any event, PO’s dictionary definition does not say that “autonomous” means operating outside control of an “external computer processor.”

**B. The transport of storage containers by robotic load handlers “exclusively” within the storage and retrieval system (’080 patent, claims 1 and 13)**

These terms should be given their plain and ordinary meaning. While the specification does not provide guidance about what these phrases from claims 1 and 13 mean—indeed, the specification does not use the term “exclusive” at all<sup>3</sup>—a PHOSITA would understand that these terms mean that storage containers are transported essentially only by robots within a storage and retrieval system during normal operation. The term “essentially” is intended to capture the practical reality that humans may handle the storage container while conducting maintenance on the

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<sup>3</sup> Lert’s disclosure regarding this limitation is no less than the ’080 patent’s. Pet., 33.

system or resolving other problems.

Although disclosure in this regard is lacking in the '080 patent, this plain and ordinary construction is supported by the intrinsic evidence and “most naturally aligns with the patent’s description of the invention.” *Renishaw*, 158 F.3d at 1250. The claims themselves recite that the “robotic load handler[s]” store, retrieve, and transport storage containers in the system. AS-1001, Claims 1, 13. The specification further describes robots transporting storage containers, and that “load handlers or other robots can access all parts of the storage-and-retrieval system ... **without** additional cranes and/or conveyors.” AS-1001, 3:7–53, 5:41–45.

PO suggest that these phrases may not have the same scope across claims 1 and 13, and purports to reserve the right to take different claim construction positions. POPR, 30 n.4. PO hides the ball as it does not explain these supposed differences in scope. Yet, in the POPR PO chose to address these terms collectively as if they have the same scope, just as Petitioner did. POPR, 30–32. And in another part of the POPR, PO admitted these terms have the same scope: “claims 1 and 13 of the '080 patent related to the transport of storage containers by robotic load handlers exclusively within the storage and retrieval system.” POPR, 4. PO also gave these terms the same scope during prosecution. AS-1003 at 322–323. Any belated argument by PO that these terms have different scope in claims 1 and 13 would contradict many of its prior positions.

**C. “a structural framework defining a grid of storage locations”  
('080 patent, claims 1 and 23)**

Claims 1 and 23 of the '080 patent recite “a structural framework defining a grid of storage locations.” Both parties contend this term should be given its plain and ordinary meaning. The core dispute is what the term “grid” refers to. Petitioner contends that “grid” refers to the arraignment of the *storage location*, not the structural framework as PO contends.

Petitioner’s position is confirmed by the claims, which “provide substantial guidance as to the meaning of particular claim terms.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005). Here, the claim recites a “grid *of* storage locations.” A straightforward reading of the phrase is that the word “grid” modifies the phrase “storage locations.” That the inventors intended “grid” to modify the phrase “storage locations” (and not “structural framework”) is confirmed by dependent claim 7. There, the '080 patent again recites “the grid of storage locations” but makes no direct reference to a “structural framework.” A PHOSITA therefore would understand that in this patent, “grid” modifies “storage locations.” As such, the phrase “a structural framework defining a grid of storage location” means that the storage locations must be arranged in a grid.

The specification supports Petitioner’s view. It describes arranging storage locations and the containers that go in those locations in a grid. The specification says that the system has “*grids of stacked containers 10*” and the “grids 200” consist

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of “containers 10 stored in rows 100 and columns 120.” AS-1001, 6:35–38. The patent also recognizes that it is possible to configure the system in many different ways but chose to focus on “*bins* stacked on top of each other in a *grid* structure.” AS-1001, 6:54–57. The specification is therefore describing the arrangement of the storage locations and containers, and how their arrangement forms a grid.

The prosecution history further supports that the claims are directed to arranging the storage locations and containers in a grid. In attempting to overcome a rejection, PO argued to the Examiner that all the claims “include[] a storage and retrieval system having a *grid of stacked containers* stored in rows and columns.” AS-1002, 321–322. Here again, PO described the claims in reference to arranging the storage locations and containers in a grid. Given this context from the specification and prosecution history, a PHOSITA would understand the term “a structural framework defining a grid of storage locations” means that the storage locations must be arranged in a grid.

That PO directed the claims to storage locations arranged in a grid is not unusual, nor does it lead to an “absurd” result as PO contends. POPR, 8. Other skilled artisans in this field use the term grid to refer to storage locations for containers. United States Patent Publication No. 2013/0015675, which is cited on the face of the ’080 patent, is entitled an “[a]pparatus, system, and method for layer picking and order fulfillment for items stored in a warehouse.” AS-1016, Cover. The publication

states that “[m]ultiple stacks 140, 141 of product 150, 156 are arranged in a grid 171 on the floor 170 or on a deck of the warehouse 175” with “each *grid position or location* 172, 173” containing products. AS-1016, ¶¶33–34. “[R]obots 110 to gain access to the *grid locations* 172, 173 that contain all the products 150...” AS-1016, ¶36. Here, like the ’080 patent, grid refers to the arrangement of storage locations and containers.

PO contends this limitation means “a structural framework in which crossed structural elements define a two-dimensional array of storage locations.” POPR, 9. But, as discussed above, the words of the claims do not support that construction because “grid” modifies the “storage locations,” not the “structural framework.” As such, this claim does not require that the structural framework itself have features that physically make it look like a “grid.” If that is what the inventors intended, then they would have claimed that the structural framework *is* a grid.

PO imports into its construction the definition of “grid” from a nontechnical dictionary dated more than a decade before the ’080 patent was filed. The Board should reject PO’s attempt to rewrite the claims using extrinsic evidence. PO’s definition is from unskilled artisans, and thus offers little help in construing this term. *Phillips*, 415 F.3d at 1318. The dictionary, moreover, defines the term “grid” in isolation and disregards that the claim recites that the structural framework defines

“a grid *of storage locations*,” which is important context to understand the meaning.<sup>4</sup>

PO’s construction also violates a cardinal rule of claim construction by attempting to limit the claims to the embodiment shown in Figure 3. *E.g.*, *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 913 (Fed. Cir. 2004). The specification is clear that the storage and retrieval system in Figure 3 is a non-limiting “example” of the purported invention. AS-1001, 6:35–42. And the specification says the system can purportedly be “applied to the operation of storage and retrieval systems 400 of *any type*,” or “other means of storage and retrieval,” meaning the inventors contemplated structures beyond the one shown in Figure 3. AS-1001, 4:57–62, 6:32–35, 9:16–25. As further evidence that Figure 3 is non-limiting, the patent says that “[t]he disclosure and invention(s) are therefore not to be limited to the exact components ... or construction set forth above.” AS-1001, 13:56–58. The Board should not adopt a construction that limits the claims to a single embodiment.

In the passage about Figure 3, PO emphasizes the word “frames” to suggest that those elements “define the grid 200.” POPR, 6–7 (citing AS-1001, 6:35–42). But the more reasonable way to read that passage is that the “containers 10” “define the grid 200” since “containers 10” immediately precedes “define the grid 200” and

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<sup>4</sup> Even if the Board were to find this dictionary useful, definitions 2 and 7 are more in line with the usage of “grid” in the ’080 patent.

the focus of the sentence is on describing “specific containers,” not “frames.” AS-1001, 6:35–42. Indeed, the sentence just before the one emphasized by PO unambiguously says “grids of stacked containers 10.” AS-1001, 6:35–38.

Even if the specification did intend “rails 160” and “frames” to define the grid in this particular non-limiting example, the specification discloses a number of configurations for the “rails 160” that are not necessarily “grids,” including rails that are “separate or independent structures,” a “single” rail, or “any other structure along which the load handlers 40 can operate.” AS-1001, 6:42–49. The specification therefore does not limit the structure of the rails or frame to “crossed structural elements.” Accordingly, the claims should not be so limited.

Finally, PO’s argument that “[t]he grid is not defined by the way the containers are arranged” cannot be reconciled with the specification which describes “grids of stacked containers 10” “stored in rows 100 and columns 120” (AS-1001, 6:35–38), or the file history where PO said the claims relate to “a grid of stacked containers stored in rows and columns.” AS-1002, 321–322. The Board should not adopt a construction supported by arguments that conflict with the intrinsic record.

#### **IV. CONCLUSION**

For the foregoing reasons, Petitioner respectfully requests that the Board institute IPR and cancel all Challenged Claims.

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Date: August 17, 2021

Respectfully submitted,

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**CERTIFICATE OF SERVICE**

The undersigned hereby certifies that a copy of the foregoing **REPLY TO PATENT OWNER PRELIMINARY RESPONSE** was served on the 17th day of August, 2021, via email directed to counsel of record for Patent Owner at the following correspondence addresses, as indicated in Patent Owner's Supplemental Mandatory notices (Paper 8):

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