

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

SHOPIFY INC. AND SHOPIFY (USA), INC.)

Plaintiffs and)
Counterclaim Defendants,)

v.)

EXPRESS MOBILE, INC.,)

Defendant and)
Counterclaim Plaintiff.)

Civil Action No.1:19-cv-00439-RGA

EXPRESS MOBILE, INC.,)

Plaintiffs,)

v.)

ICROSSING, INC.,)

Defendant.)

Civil Action No.1:18-cv-01176-RGA

JOINT CLAIM CONSTRUCTION BRIEF

Adobe Inc. v. Express Mobile, Inc.,
IPR2021-XXXXX
U.S. Pat. 9,063,755
Exhibit 1015

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TABLE OF ABBREVIATIONS [EXPRESS MOBILE]

<i>Express Mobile, Inc. v. eGrove Sys. Corp.</i> , No. 1:17-cv-00703-RGA (D. Del. Aug. 22, 2018), D.I. 35	Ex. 1A, <i>eGrove</i> Order
<i>Express Mobile, Inc. v. Svanaco, Inc.</i> , No. 2:17-cv-00130-JRG-RSP, (E.D. Tex. Feb. 7, 2018), D.I. 97	Ex. 1B, <i>Svanaco</i> Order
<i>X.Commerce, Inc. v. Express Mobile, Inc.</i> , 3:17-cv-02605-RS, (N.D. Cal September 10, 2018), D.I. 79	Ex. 1C, <i>X.Commerce</i> Order
<i>Express Mobile, Inc. v. eGrove Sys. Corp.</i> , No. 1:17-cv-00703-RGA (D. Del. Aug. 22, 2018), D.I. 23	Ex. 1D, <i>eGrove</i> JCCC.
https://dictionary.cambridge.org/us/dictionary/english/comprise	Ex. 1E
U.S. Patent No. 6,546,397	'397
U.S. Patent No. 7,594,168	'168
U.S. Patent No. 9,063,755	'755
U.S. Patent No. 9,471,287	'287
U.S. Patent No. 9,928,044	'044
<i>Williamson v. Citrix Online, LLC</i> , 792 F.3d 1339, 1348 (Fed. Cir. 2015) (en banc)	<i>Williamson</i>
<i>Express Mobile, Inc. v. eGrove Sys. Corp.</i> , No. 1:17-cv-00703-RGA (D. Del. Aug. 22, 2018), D.I. 35	Ex. 1A, <i>eGrove</i> Order
<i>Express Mobile, Inc. v. Svanaco, Inc.</i> , No. 2:17-cv-00130-JRG-RSP, (E.D. Tex. Feb. 7, 2018), D.I. 97	Ex. 1B, <i>Svanaco</i> Order
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U.S. Patent No. 6,546,397	'397
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U.S. Patent No. 9,928,044	'044
<i>Williamson v. Citrix Online, LLC</i> , 792 F.3d 1339, 1348 (Fed. Cir. 2015) (en banc)	<i>Williamson</i>
<i>Express Mobile, Inc. v. Svanaco, Inc.</i> , No. 2:17-cv-00130-JRG-RSP, (E.D. Tex. Feb. 7, 2018), D.I. 82	Ex. 3A, <i>Svanaco</i> Schmandt Decl.
<i>Express Mobile, Inc. v. Svanaco, Inc.</i> , No. 2:17-cv-00130-JRG-RSP, (E.D. Tex. Feb. 7, 2018), D.I. ____	Ex. 3B, <i>Svanaco</i> Schmandt Inval. Rep.
<i>Express Mobile, Inc. v. Svanaco, Inc.</i> , No. 2:17-cv-00130-JRG-RSP, (E.D. Tex. Feb. 7, 2018), D.I. ____	Ex. 3C, <i>Svanaco</i> Schmandt Dep. Tr.

All bold emphasis in cited passages is added.

TABLE OF ABBREVIATIONS [DEFENDANTS]

Abbreviation	Full Name
Chrobak Tr.	Deposition testimony of David Chrobak in <i>Shopify Inc. and Shopify (USA), Inc. v. Express Mobile, Inc.</i> , No. 1:19-cv-00439-RGA (D. Del.), dated April 29, 2020 (Rough Draft)
Defendants	Shopify Inc., Shopify (USA), Inc. and iCrossing, Inc.
JCCC	Joint Claim Construction Chart, D.I. 69 (filed Jan. 28, 2020)
JVM	Java Virtual Machine
Kruetzfeldt Tr.	Deposition testimony of Andre Kruetzfeldt in <i>Express Mobile v. Svanaco, Inc.</i> , No. 2:17-cv-00130 (E.D. Tex.), dated December 6, 2017
Rempell Tr.	Deposition testimony of Steven Rempell in <i>Express Mobile v. Svanaco, Inc.</i> , No. 2:17-cv-00130 (E.D. Tex.), dated March 29, 2018, and May 1, 2018
Payne Order	<i>Express Mobile, Inc. v. Svanaco, Inc.</i> , 2:17-cv-00130-JRG-RSP, Claim Construction Memorandum Opinion and Order, D.I. 97 (E.D. Tex. Feb. 7, 2018)
Schmandt Decl.	Exhibit 1, Declaration of Christopher Schmandt in Support of Defendants' Answering Claim
Schmandt Suppl. Decl.	Exhibit 38, Supplemental Declaration of Christopher Schmandt in Support of Defendants' Surreply Claim Construction Brief
W3C	World Wide Web Consortium
Weadock Decl.	Declaration of Glenn Weadock in Support of Express Mobile's Opening Claim Construction Brief
Weadock Tr.	Deposition testimony of Glenn E. Weadock in <i>Shopify Inc. and Shopify (USA), Inc. v. Express Mobile, Inc.</i> , No. 1:19-cv-00439-RGA (D. Del.) and <i>Express Mobile, Inc. v. iCrossing, Inc.</i> , No. 1:18-cv-01176-RGA (D. Del.), dated March 25,
XMO	Express Mobile, Inc.

I. AGREED-UPON CONSTRUCTIONS

Claim Term	Agreed Construction
settings '397 patent: claims 1-6, 9, 11-15, 19, 23, 37 '168 patent: claim 4	attributes of an object available for selection
multidimensional array '397 patent: claim 3, 4, 5 '168 patent: claims 1-4, 6	a uniquely identifiable indexed set of related elements, wherein each element is addressed by a set of two or more indices, each index corresponding to a dimension of the array
vector object '397 patent: claim 6	a graphical image defined by line segments drawn between specified coordinates
transformation(s) '397 patent: claim 11 '168 patent: claims 1-4, 6	change(s) of an object from one state to another based on a timer control, subject to user settings
database '397 patent: claims 1-6, 9, 11-15, 19, 23, 37 '168 patent: claims 1-4, 6	an electronic information storage system offering data storage and retrieval and that stores information on a record-by-record basis, each record divided into one or more fields
internal database '397 patent: claim 37	database internal to the build tool and distinct from the external database
external database '397 patent: claim 37	database external to the build tool
storing information representative of said one or more user selected settings in a database '397 patent: claim 1	Storing data in a database, which data pertains to one or more attributes of an object available for selection by a user
one or more run time files / at least one run time file '397 patent: claims 1-6, 9, 11-15, 19, 23, 37	one or more files, including a run time engine, that are downloaded or created when a browser is pointed to a web page or website
authoring tool	a system, with a graphical interface, for generating code to display content on a device screen

Claim Term	Agreed Construction
'755 patent: claims 1, 3, 5-7, 11 '287 patent: claims 1, 3, 5-7, 11, 13 '044 patent: claims 1, 3-7, 11-13, 15, 17-21, 25-27	
where said Application is a device-dependent code '755 patent: claims 12, 14-18, 22	where said Application is a device-independent code
for evoking one or more web components '755 patent: claims 1, 3, 5-7, 11, 12, 14-18, 22 '287 patent: claims 1, 3, 5-7, 11, 13 '044 patent: claims 1, 3-7, 11-13, 15, 17-21, 25-27	for calling up one or more web components
server comprising a build engine configured to a server comprising a build engine configured to: accept user input to create a web site, the web site comprising a plurality of web pages, each web page comprising a plurality of objects, accept user input to associate a style with objects of the plurality of web pages, wherein each web page comprises at least one button object or at least one image object, and wherein the at least one button object or at least one image object is associated with a style that includes values defining transformations and time lines for the at least one button object or at least one image object; and wherein each web page is defined entirely by each of the plurality of objects comprising that web page and the style associated with the object, produce a database with a multidimensional array comprising	No construction necessary

Claim Term	Agreed Construction
<p>the objects that comprise the web site including data defining, for each object, the object style, an object number, and an indication of the web page that each object is part of, and</p> <p>provide the database to a server accessible to web browser; wherein the database is produced such that a web browser with access to a runtime engine is configured to generate the web-site from the objects and style data extracted from the provided database.</p> <p>'168 patent: claims 1-4, 6</p>	
<p>registry</p> <p>'755 patent: claims 1, 3, 5-7, 11, 12, 14-18, 22</p> <p>'287 patent: claims 1, 3, 5-7, 11, 13</p>	No construction necessary
<p>provide the database to a server accessible to a web browser</p> <p>'168 patent: claims 1-4, 6</p>	No construction necessary
<p>preferred UI object</p> <p>'287 patent claims 1, 3, 5-7, 11-13</p>	A UI object associated with a data type that is favored over the other UI object candidates for that data type

II. DISPUTED CONSTRUCTIONS

A. Introduction

1. Express Mobile's Opening Brief

This Court previously construed many terms of the '397 and '168 patents. Ex. 1A, *eGrove* Order. (Ex. 1 refers to the Devlin Decl. Ex. 2 refers to the Weadock Decl.) Express Mobile asserts that the Court should maintain its prior constructions. Express Mobile's constructions are consistent with the plain meaning of the terms and supported by the intrinsic and extrinsic evidence

and the understanding of one of skill in the art.¹ Shopify rejects this Court's constructions and proposes new constructions that attempt to add narrowing limitations or redefine terms contrary to their ordinary meaning, contrary to well established law. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13, 1323 (Fed. Cir. 2005). Shopify has also asserted that numerous well-known, plain terms must be construed. For example, Shopify asserts that common words such as "structured," "consisting of," "transition," "web page," "produce," and "provide" must be construed. No other party in the dozens of other cases has asserted that these terms need construction and, in fact, Shopify's counsel previously agreed many of these terms need no construction. Shopify's efforts to overload the Court with dozens of needless constructions are a transparent attempt to rewrite the claims to try to avoid liability. This Court has rejected similar attempts before and should again reject all of Shopify's improper constructions.²

2. Defendants' Answering Brief

Express Mobile Inc.'s ("XMO's") proposed constructions all reflect its strategy to stretch the meaning of the asserted claims beyond their understood meaning at the time of the purported inventions, in an effort to maximize its ability to change its infringement positions as the cases progress. For some terms, XMO asserts that no construction is necessary, even though these terms would not be familiar to a lay person. While "no construction" may be appropriate in some instances, when the parties disagree on the meaning of a claim term, the Court should construe it. *See Power Integrations, Inc. v. Fairchild Semiconductor Int'l, Inc.*, No. CA 08-309-LPS, 2012

¹ Glenn Weadock has an engineering degree from Stanford University and has nearly 30 years of experience in computer programming, web design, and the IT field. Ex. 2, ¶¶ 3-13.

² *Chanbond, LLC v. Atl. Broadband Grp., LLC*, No. 1:15-CV-00842-RGA, 2016 WL 7177612, at *7 (D. Del. Dec. 9, 2016) ("Defendants are simply making a non-infringement argument rather than attempting to meaningfully construe a term that has a plain meaning to persons of ordinary skill in the art. I will not read limitations into a claim terms that are unsupported by the intrinsic evidence. Therefore, I will construe this term to have its plain meaning.").

WL 938926, at *6 (D. Del. Mar. 13, 2012) (rejecting argument that term did not require construction and reasoning that “the Court concludes that it must construe this term because the parties do not agree on its meaning and their disputes appear to be material”) (citing, *inter alia*, *O2 Micro Int’l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351 (Fed. Cir. 2008)). Plaintiffs and Counterclaim Defendants Shopify Inc. and Shopify (USA), Inc.’s (“Shopify”) and iCrossing, Inc.’s (“iCrossing,” collectively with Shopify, “Defendants”) proposed claim constructions are supported by the intrinsic and extrinsic record, explain and clarify the meaning of the challenged terms, and are consistent with how a person of ordinary skill in the art would have understood the disputed terms at the time of the claimed invention.

Two families of patents are at issue: (1) U.S. Patent Nos. 6,546,397 and 7,594,168 (“the ‘397 patent,” “the ‘168 patent,” and collectively “the ‘397 patent family”); and (2) U.S. Patent Nos. 9,063,755, 9,471,287, and 9,928,044 (“the ‘755 patent,” “the ‘287 patent,” “the ‘044 patent,” and collectively “the ‘755 patent family”). The ‘397 patent family generally describes browser-based methods for web page and web site design that purport to allow the creation of so-called “dynamic” web pages. The specification discloses that the amount of work the creator must do to change or update web pages can be minimized, by storing display attributes in a database separate from the runtime files that are executed by a “virtual machine” on the end user’s computer, when he or she browses to the web page. *See* Schmandt Decl. (Defs’ Ex. 1)³ Part VI.A.

The ‘755 patent family relates to two concepts: (1) an authoring tool that allows the creator of a web page to customize the web page display for receiving inputs and displaying outputs of

³ Express Mobile’s exhibits are numbered 1A through 4S whereas Defendants’ exhibits are numbered 1 through 37. To distinguish Defendant’s exhibits from Express Mobile’s, this joint brief cites Defendants’ exhibits 1, 2, 3, and 4 as “Defs’ Ex. 1,” “Defs’ Ex. 2,” “Defs’ Ex. 3,” and “Defs’ Ex. 4” and the remainder of Defendants’ exhibits as “Ex. 5” through “Ex. 37.”

web services; and (2) an authoring tool that generates two sets of code—a device-independent Application and a device-specific Player that allow a client to view this creator-customized web page on his or her device.⁴ *See* Schmandt Decl. Part VI.B.

3. Express Mobile’s Reply Brief

Defendants abandoned or changed thirty percent of their constructions after receiving Express Mobile’s opening brief. Dkt. 98. Defendants accuse Express Mobile of changing positions, but Express Mobile’s claim constructions have remained the same throughout this and other cases and several of those constructions were previously adopted by this Court. Ex. 1A. Defendants still assert that approximately thirty terms must be construed when no other Court has construed more than nine. Defendants’ expert and counsel previously disputed only three or five terms respectively for the ’397 patent family and readily understood and applied many terms, in most cases consistent with Express Mobile’s constructions. Defendants now assert here that these very same terms that they understood and applied without construction are indefinite or were “clearly” defined by the patentee in the specification.

Defendants also incorrectly assert that the applicants clearly disavowed claim scope for sixty percent of the ’755 patent claim terms during prosecution. But every reference to a claim term in the patent or prosecution history does not “redefine” that term or disclaim claim scope. Defendants’ constructions are unnecessary, transparent attempts to rewrite the claims that are unsupported and belied by their counsel and experts’ prior positions and should be rejected.

⁴ Both families of patents discuss creating web pages and then accessing these web pages after they are created. Herein, Defendants generally refer to the “creator” as the user that builds the web page and the “end-user” generally as the user that accesses the web page.

III. CLAIM CONSTRUCTIONS OF THE '397 AND '168 PATENTS

A. “virtual machine”

Express Mobile Construction	Defendants’ Construction
Abstract machine emulated in software	Abstract machine that is emulated in software and that executes intermediate code in the instruction set of that machine

1. Express Mobile’s Opening Brief

Express Mobile proposes the same construction that was previously adopted by this Court. Ex. 1A, *eGrove* Order. Express Mobile’s construction is supported by the claims, specification, prosecution history and extrinsic evidence. Ex. 2 ¶¶ 23-32. The claims use this term broadly without limitation: claim 1, for example, recites “virtual machine commands” that correspond to “user selectable settings” and are used to render the web page. ’397 at 65:53-54.

Shopify improperly attempts to add two extraneous limitations: “that executes intermediate code” and “in the instruction set of that machine” that are unsupported by the intrinsic or extrinsic evidence. The specification discloses a Java virtual machine in a preferred embodiment. Even assuming, *arguendo*, that the Java virtual machine is the only preferred embodiment the claims should not be so limited. Ex. 2 ¶¶ 26-30. Another court has already rejected adding the “intermediate code” limitation because claims are not limited to preferred embodiments.⁵ Ex. 1C, *X.Commerce* Order at 6. See *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 906 (Fed. Cir. 2004) (“Even when the specification describes only a single embodiment, the claims of the patent will not be read restrictively unless the patentee has demonstrated a clear intention to limit the claim scope using ‘words or expressions of manifest exclusion or restriction.’”). Here, the patentee

⁵ Although the E.D. Texas included “that executes intermediate code,” it was based on limited extrinsic evidence. Ex. 1B, *Svanaco* Order at *4-5. When considering all extrinsic evidence, it is clear that executing intermediate code is not a requirement of a virtual machine. Ex. 2 ¶ 30.

made no limiting statements that intermediate code was critical or a necessary part of the Virtual Machine.

Furthermore, the specification discloses that other programming languages can be used to practice the invention, particularly as browsers develop over time. See '397 at 32:21-25, 62:33-36. One of ordinary skill in the art would understand a “full-featured programming language” and “popular browsers” with “more robust versions of programming languages” to disclose the use of other virtual machines. Ex. 2 ¶ 27. Most browser programming languages rely on virtual machines that do not execute intermediate code. Ex. 2 ¶¶ 31-32. Thus, the specification contemplates the use of a variety of virtual machines without limiting to intermediate code.

Lastly, no Court has adopted, and one court specifically rejected, Shopify’s extraneous and improper “in the instruction set of that machine” limitation. Ex. 1B, *Svanaco Order* at *5 (finding it “both redundant and potentially confusing to the jury”).

2. Defendant’s Answering Brief

The dispute between the parties is whether the concept of a “virtual machine” requires execution of intermediate code that is in the instruction set of the virtual machine (Defendants’ proposal), or whether *any* software executing *any* code (including human-readable source code) constitutes a virtual machine (XMO’s proposal). XMO’s proposed construction is designed to support its infringement contentions, which attempt to expand the term “virtual machine” to include modern browser engines that “interpret and execute JavaScript, CSS, HTML, and other code to render web pages on a computer.” See, e.g., Defs’ Ex. 2 at 1. The Court should not allow this move. The asserted patents expressly disparage webpages encoded in JavaScript and HTML and rendered by a browser. See, e.g., ‘397 patent at 1:11-21. Indeed, according to the specification, the *entire point* of the invention was to improve upon systems that operated on

HTML and JavaScript by using a virtual machine that operated using a “full featured” coding language. *See, e.g.*, ‘397 patent at 1:11-3:6.

Some additional background may be helpful to the Court’s understanding of the current dispute. At the outset, both parties’ constructions recognize that a “virtual machine” does not emulate a “*real* machine” (*i.e.*, a computer having actual, physical hardware, such as an Intel x86 processor), but an “*abstract*” or “*hypothetical*” machine. It is also not in dispute that, for a virtual machine to be operable, it must contain what is called an “instruction set.” *See* Schmandt Decl. ¶ 65. An instruction set is a set of all of the commands that can be recognized—and executed—by a computer. *Id.*; Defs’ Ex. 3 (Weadock Tr.) at 82:17-22. In the case of a real machine, the instruction set takes the form of a “machine code” designed to be understood and executed by a processor having a specific hardware configuration, called an “instruction set architecture.” Schmandt Decl. ¶ 66. For example, the majority of personal computers are based on an Intel x86 instruction set architecture and have what are called x86 processors. *Id.* For software to run on such computers, it must be converted into machine code in the x86 instruction set. *Id.* In contrast, the majority of smartphones are based on an ARM instruction set architecture and have what are called ARM processors. *Id.* ¶ 67. For software to run on such smartphones, it must be converted into machine code in the ARM instruction set. *Id.* ARM instruction set machine code is not compatible with, and cannot be natively executed by, x86 processors, and *vice versa*. *Id.*

It also undisputed that, like real machines, virtual machines also have an instruction set. *See* Schmandt Decl. ¶ 65; Defs’ Ex. 3 (Weadock Tr.) at 82:17-24. The parties agree that every embodiment of the asserted patents uses a Java Virtual Machine (“JVM”) which requires intermediate code (“Java bytecode”) in the instruction set of the JVM. Schmandt Decl. ¶ 68; Defs’ Ex. 3 (Weadock Tr.) at 79:14-80:3, 86:18-87:4, 113:16. Thus, for software to execute on a JVM,

that software must necessarily be converted (*e.g.*, from Java programming language source code) into an intermediate code in the instruction set of the JVM, *i.e.*, Java bytecode. Schmandt Decl. ¶ 68. The representation is “intermediate,” because for the software to ultimately be executed, it must be converted again (by the JVM) into the machine code of the underlying real computer on which the JVM is running. *Id.* ¶ 69. Thus, having intermediate code in the instruction set of the virtual machine is inherent in the concept of a virtual machine. *Id.* ¶¶ 71, 73-77.

XMO’s proposed construction pays lip service to some of the elements of a virtual machine, but its construction omits this defining element. XMO’s omission is designed to stretch the concept of a virtual machine onto modern browser engines that “interpret and execute,” not any “intermediate representation” of a virtual machine, but HTML and JavaScript *source code*. *See, e.g.*, Defs’ Ex. 2 at 1. But XMO’s own expert from a previous litigation, *agrees* with Defendants that a “virtual machine *necessarily* has an intermediate representation because that *intermediate representation is the instruction set for that virtual machine.*” *See e.g.*, Defs’ Ex. 4 (Kruetzfeldt Tr.) at 68:13-17.

The intrinsic evidence supports the requirement of intermediate code in the instruction set of a virtual machine. The patents’ specifications refer to a “virtual machine” only once, as a “JAVA virtual machine,” which requires intermediate code in the form of Java bytecode. ‘397 patent at 35:34-38; Schmandt Decl. ¶ 68. Both sides’ experts agree that all of the disclosed embodiments in the ‘397 patent family use JVMs, and therefore, all of the embodiments involve the execution of intermediate code in the instruction set of the virtual machine. Defs’ Ex. 3 (Weadock Tr.) at 113:11-16, 222:1-17, 79:14-80:3, 86:20-87:4; Schmandt Decl. ¶ 68. XMO suggests that the specification also refers to the potential for “new capabilities” as programming languages evolve, but none of the cited passages suggests that those programming languages could

employ virtual machines that do not execute intermediate code. *Supra* at 8 (citing ‘397 patent at 32:2125, 62:33-36). As Judge Payne of the Eastern District of Texas previously concluded, there simply “is no intrinsic evidence suggesting a virtual machine executes something other than its intermediate code.” Ex 5 at 10.

Extrinsic evidence in addition to the sworn testimony of XMO’s prior expert further confirms that intermediate code in the instruction set is a requirement of a virtual machine. XMO’s current expert, Mr. Weadock cites two dictionary definitions of “virtual machine,” both of which define virtual machines as abstract machines, but do not mention intermediate code. At his deposition, however, Mr. Weadock testified that he was not provided with other portions of these dictionaries, and thus, he did not look to see how “abstract machine” was defined. Defs’ Ex. 3 (Weadock Tr.) at 217:22-220:20, 223:9-224:10; *see* Schmandt Decl. ¶ 74. Had he done so, he would have realized that the very dictionaries from which his definitions of “virtual machine” were excerpted define an abstract machine as “[s]oftware that *executes an intermediate language* used in a compiler or interpreter.” Ex. 6 at 2; Ex. 7 at 15.

Other dictionary definitions are in accord. For example, Blackie’s Dictionary of Computer Science confirms that a “virtual machine” is an abstract machine that process high-level languages, which are first “compiled into *code for the virtual machine (an intermediate language)* which is then executed by an interpreter.” Ex. 8 at 358; *see also* Ex. 9; Ex. 10 at 11 (dictionary cited by XMO specifying that an abstract machine processes “abstract machine language,” defined to be “an *intermediate programming language* used by an interpreter or compiler”).

XMO’s critique of Defendants’ proposed construction is unpersuasive. First, XMO argues that the Court should maintain its construction of “virtual machine” from the *eGrove* case, *supra* at 7. But in that case, the question of whether intermediate code in the instruction set is a

requirement of a virtual machine was not raised—indeed, eGrove did not even offer a proposed construction—and neither party disclosed the deposition testimony from XMO’s former expert, Mr. Kruetzfeldt, asserting that this “necessarily” is a requirement of a virtual machine. 1:17-cv-00703-RGA, D.I. 33 at 11, D.I. 34. Thus, Defendants respectfully suggest that the Court should not feel obliged to maintain its *eGrove* construction, which was based on a different record, with more limited evidence and did not address the dispute presented here. *See CVI/Beta Ventures, Inc. v. Tura LP*, 112 F.3d 1146, 1160 n.7 (Fed. Cir. 1997) (reaching a different claim construction than a prior decision due to expanded record).

Second, XMO asserts that “[a]nother court has already rejected adding the ‘intermediate code’ limitation because claims are not limited to preferred embodiments.” *Supra* at 7. XMO is incorrect. In the *X.Commerce* case, Judge Seeborg addressed the proposed requirement of *compiled* code, not intermediate code. While compilation is one way to generate intermediate code, it is not the only potential way (*see* Schmandt Decl. ¶ 43)—and X.Commerce’s proposed construction in front of Judge Seeborg was thus too narrow. Defendants’ proposed construction here, however, does not limit how the intermediate code is generated and is not limited to any preferred embodiment. Irrespective of *how* the intermediate code executed by the virtual machine is generated, *all* virtual machines execute intermediate code in their instruction set—as confirmed by XMO’s own expert (Mr. Kruetzfeldt), the intrinsic record, and the extrinsic record as detailed above. *See* Schmandt Decl. ¶¶ 71, 74.

Third, XMO asserts that another court “specifically rejected” Defendants’ proposed inclusion of the phrase “in the instruction set of the machine” in the construction of this term. *Supra* at 8. Not so. In litigation between XMO and BigCommerce, Magistrate Judge Payne actually agreed that “it is technically correct to describe the ‘intermediate code’ as the instruction

set of the virtual machine,” but viewed the additional phrase as redundant. Ex. 5 (Payne Order) at 9. Similarly, XMO’s expert does not suggest this additional phrase is inaccurate, he only contends that it is redundant. Weadock Decl. ¶ 32. Defendants maintain that this phrase is necessary to fully resolve the claim construction dispute at this stage, because XMO has made it clear that the presence of any intermediate code makes the software that generates or processes it a “virtual machine.” That is incorrect and contrary to the definition of a virtual machine, which requires intermediate code in its instruction set. *See* Schmandt Decl. ¶¶ 71, 73-77, 84-85.

3. Express Mobile’s Reply Brief

Defendants go to great lengths to overturn this Court’s and the N.D. California’s construction of virtual machine. But a virtual machine is just that: a machine that is virtual, abstract, or hypothetical, rather than physical. Ex. 4 ¶¶ 11-12. Defendants admit that much, but assert that “virtual machine” *must* also include an instruction set that uses an intermediate code because a preferred embodiment uses intermediate code (i.e., they assert that a Java Virtual Machine (“JVM”) disclosed in the patent “requires intermediate code.”). Neither the 100-page ’397 patent nor the 1400-page prosecution history ever use or discuss the term “intermediate code.” Defendants read the limitation into the claims based solely on *a characteristic of one type of virtual machine in a preferred embodiment*. “[I]t is improper to read limitations from a preferred embodiment described in the specification—even if it is the only embodiment.” *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 913 (Fed. Cir. 2004).

Defendants claim that intermediate code is “inherent” in a virtual machine. But there are myriad virtual machines including those that do not require the use of intermediate code (e.g., interpreters). Ex. 4 ¶¶ 11-26. Numerous professors and experts in computer science have recognized this fact for decades. Ex. 4 ¶ 13-14, 18. Virtual Machines for languages such as Basic, Lisp, Tcl, and Ruby all existed at the time of the invention and did not use intermediate code. Ex.

4 ¶ 15. Intermediate code is not “inherent” in virtual machines; it is merely one means by which one virtual machine referenced in the specification, the JVM, provides for executing programs. Nothing in the intrinsic record disclaims virtual machines that do not use intermediate code.

The ’397 patent discloses that the purpose of the “virtual machine” was to ensure the functionality of a “Browser Based build engine that is written entirely in a web based full featured programming language.” ’397 at 1:52-54; Ex. 4 ¶ 16. Defendants and their expert agree. Defs. Br. (“The *entire point* of the invention was to . . . us[e] a virtual machine that operated using a ‘full featured’ coding language.”); Ex. 4H, Schmandt Dep. at 136:10-18, 137:5-138:3. As of the priority date, Java was one such popular, full-featured programming language that could be used to implement a browser-based website building tool using a JVM. Ex. 4 ¶ 16. That was thus the exemplary embodiment described in the specification. However, the patentee contemplated that “full-featured programming languages supported by browsers [would] evolve,” ’397 at 62:33-34, and that “[t]his evolution of . . . technology is independent of the preferred implementation and methods of the invention.” *Id.* at 65:37-39; Weadock Dep. at 263:9-265:11. Defendants’ expert again agrees. Ex. 4H, Schmandt Dep. at 138:21-139:12, 142:5-14, 152:8-13. Thus, the patentee contemplated that other “full featured programming languages” could be used in browser-based website building tools that use virtual machines. Whether the virtual machine used intermediate code to achieve that end is immaterial to what the patentee claimed. Ex. 4 ¶ 17.

Defendants argue that the patentee “expressly disparage[s] webpages encoded in JavaScript and HTML,” suggesting that he disclaimed JavaScript virtual machines, and other virtual machines that do not use intermediate code. Defendants’ “disparagement” argument is unsupported. This statement has nothing to do with intermediate code, but rather that as of the priority date, JavaScript was not yet a full-featured language, which is why the patentee noted it

was “virtually impossible to write a web publishing application” using JavaScript at that time. ’397 at 1:22-23. JavaScript evolved into a full-featured programming language after the patent issued, and harnessed a virtual machine, precisely as the patentee contemplated. Ex. 4 ¶¶ 17-19, 26.

Defendants also attempt to support their strained construction by construing “abstract machine” within the proposed “virtual machine” construction. *See supra* (citing dictionary definition of “abstract machine”). But that definition simply references one class of abstract machine. Ex. 4 ¶¶ 18-19. A POSA would understand that an abstract machine, as defined in numerous extrinsic sources, is a generic term. Ex. 4 ¶ 20-22. Defendants’ expert, who now relies on the narrower definitions, previously testified he did not even know what an abstract machine was, and that the abstract or hypothetical machine was only meant to distinguish the term from an actual physical machine. Ex. 3C, *Svanaco* Schmandt Dep. at 67:11-21. This is consistent with generic definitions of “abstract machine” noted above. *See* Ex. 4 ¶¶ 20-24.

Defendants also mischaracterize the testimony of an expert in a prior case, Mr. Kruetzfeldt. His testimony that a virtual machine necessarily has intermediate code was premised on a broad definition of “intermediate code” under which an interpreter which interprets straight from human readable source code into machine code could be considered to use intermediate code. Consistent with Express Mobile’s position, Mr. Kruetzfeldt expressly stated that “every interpreter can be a virtual machine” regardless whether intermediate code is used. Ex. 4 ¶ 23.

Finally, Defendants attempt to distinguish this Court’s and the N.D. California’s constructions of this term because the exact term “intermediate code” was not used. Both courts rejected the defendants’ attempt to read additional limitations into the meaning of this term. Defendants also assert this Court’s prior construction was based on a “different record”, but merely

quoting one snippet from a deposition out of context does not change the '397 patent claims, specification, prosecution history, or meaning of this term. *See* Ex. 4 ¶ 25.

4. Defendant's Sur-Reply Brief

The technical dictionaries relied upon by XMO and Mr. Weadock for definitions of “virtual machine” confirm that Defendants’ proposed construction is correct. *Supra* at 11. Faced with this realization, XMO makes two new arguments on reply, neither of which is persuasive.

First, XMO argues that “pure” interpreters that do not utilize intermediate code were recognized as virtual machines by “[n]umerous professors and experts in computer science.”⁶ *Supra* at 13. The support for this argument consists of lecture notes and an introductory textbook directed to undergraduate computer science students. These new materials do not support XMO’s position, and XMO offers no explanation for where it obtained these materials or why they would have been considered relevant by a person of ordinary skill in the art (“POSA”). The course notes state that interpreters “simulate” virtual machines, and reflect use of the term “virtual machine” as a teaching tool to explain the concept of abstraction and distinguish from earlier work, in which programmers wrote machine code for real machines directly. Schmandt Supp. Decl. (Ex. 38) ¶¶ 11-19 (citing Exs. 4A–4C). These materials do not purport to define the term “virtual machine”—much less define it in a technical sense as a POSA would understand it.

XMO also cites a textbook that post-dates the relevant patents by a decade and states that an “interpreter program acts as a software simulation of a machine” and “obviously provides a virtual machine for the language.” Ex. 4F at 28. This explanation again reflects use of the term “virtual machine” to explain how an interpreter for a language is seen by a programmer and

⁶ XMO cites undergraduate computer science materials from only three professors (one of whom appears to have derived his course notes from the other) in support of this statement, not materials reflecting the views of “[n]umerous professors and experts.” *See* Exs. 4A-C, 4F.

eliminates the need to write code in machine language, but does not purport to define the term “virtual machine.” Schmandt Suppl. Decl. ¶ 22. In fact, other descriptions in the same textbook confirm that virtual machines have intermediate code in their instruction sets, as provided in Defendants’ proposed construction. Ex. 22 at 93 (“Any language can be translated to an intermediate form and ‘run’ on any platform that has a virtual machine for that intermediate form.”), 141 (referring to an “intermediate language and its associated virtual machine”).

XMO’s prior technical expert, Andre Kruetzfeldt, does not support XMO’s current position that all interpreters are virtual machines either—he agrees with Defendants. XMO selectively quotes Mr. Kruetzfeldt’s testimony that “every interpreter *can be* a virtual machine,” *supra* at 15 (emphasis added), but omits his subsequent testimony, in which he confirms that an interpreter that does not utilize intermediate code is not a virtual machine:

- Q. I am talking about an interpreter that takes source code and interprets it directly into machine code without an intermediate representation. That would not be a virtual machine; correct?
- A. *I would not see that as a virtual machine.* That is an interpreter or emulator.⁷

Second, XMO argues that because JavaScript purportedly evolved into a full-featured programming language after the patent application was filed, “virtual machine” should be construed broadly enough to encompass all JavaScript engines used by modern web browsers. Not so. The evolution of JavaScript after the filing date of the ’397 patent application is irrelevant to claim construction, and does not answer the question of whether a POSA would understand a virtual machine, in 1999, to require intermediate code in its instruction set. Some JavaScript

⁷ Defs’ Ex. 4 (Kruetzfeldt Tr.) at 69:6–13 (emphasis added). XMO also asserts that “Virtual Machines for languages such as Basic, Lisp, Tcl, and Ruby all existed at the time of the invention and did not use intermediate code.” *Supra* at 13. XMO does not provide any authority for this argument, but it appears to be incorrect. Available virtual machines for these languages used intermediate code. Schmandt Suppl. Decl. ¶ 24.

engines may be considered virtual machines, but only if the instruction set for the specific JavaScript engine being considered includes intermediate code.

For example, Mr. Weadock initially pointed to a Netscape JavaScript engine as an example of a JavaScript virtual machine, which Mr. Schmandt agreed could be considered a virtual machine, *because it includes intermediate code in its instruction set*. Schmandt Decl. ¶¶ 81-83. Mr. Weadock does not challenge Mr. Schmandt’s understanding, but now argues that he also “referenced both V8 and node.js during my deposition, which are modern JavaScript engines that do not necessarily execute intermediate code.” Weadock Supp. Decl. ¶ 26. While Mr. Weadock does not identify what specific V8 or node.js engines he was referring to, to the extent there are implementations that do not include intermediate code in the instruction set, these JavaScript engines would not be considered virtual machines. XMO’s effort to have *all* JavaScript engines characterized as virtual machines, regardless of whether they include intermediate code in the instruction set, is motivated by its infringement allegations, but finds no support in the intrinsic or extrinsic record.⁸ See Weadock Decl. ¶ 31; Schmandt Decl. ¶¶ 81-83.

B. “virtual machine commands / commands to said virtual machine”

Express Mobile Construction	Defendants’ Construction
No construction necessary	code in the instruction set of the virtual machine

1. Express Mobile’s Opening Brief

The term “virtual machine” is already being separately construed and it is unnecessary to construe “commands,” a common term well-known in the field of computing. Ex. 2 ¶¶ 33-35. Shopify’s counsel previously used this term in its construction of runtime engine without ever

⁸ XMO’s infringement theories are premised on this construction. But “claims may not be construed by reference to the accused device.” *NeoMagic Corp. v. Trident Microsystems*, 287 F.3d 1062, 1074 (Fed. Cir. 2002).

suggesting that “commands” needs its own construction. Ex. 1B, *Svanaco* Order at 10. Shopify’s construction introduces ambiguity and imports unsupported limitations into the claim. First, commands are broader than just “code.” The specification describes various types of commands common in computing, including actions the virtual machine can perform that are not code, such as “user commands (actions).” ’397 at 6:15, 10:33-34, 19:44-45; Ex. 2 ¶ 34. Second, Shopify’s attempt to import the limitation of “in the instruction set of the virtual machine” is both unsupported by the intrinsic evidence (see discussion above of “virtual machine”) and introduces needless ambiguity of what constitutes an instruction set of the virtual machine.

2. Defendants’ Answering Brief

Defendants’ proposed construction explains what a “virtual machine command” is (*i.e.*, code) and what form it takes (*i.e.*, the instruction set of the virtual machine). XMO resists any explanation and argues for “no construction” because the term “command,” standing alone, is a “common term well-known in the field of computing” that can be broader than code. *Supra* at 18. But the definition “command” in the abstract is not disputed. The dispute between the parties is whether a *virtual machine* command can be something other than code, and the answer is no. Code in the instruction set of the virtual machine is the only type of command that a virtual machine can execute to “display at least a portion of said one or more web pages” as the claims require. ’397 Patent at claim 1; *see* Schmandt Decl. ¶¶ 87, 90.

XMO’s three citations to the specification are not to the contrary: the first refers to “user commands”; the second refers to “feature commands”; and the third refers to “icon commands.” Schmandt Decl. ¶ 89. None of the cited portions of the specification refer to the claimed virtual machine commands. While it is possible to represent a command at a higher level, in words or through graphics (like an icon for bold, italic, underline, etc.), any command for a virtual machine

must be reduced to code, so that the virtual machine can execute or interpret it.⁹ Schmandt Decl. ¶¶ 87, 90, 71, 77. When a user presses the “italics” icon, that causes a command in the form of code to be executed or interpreted to effectuate the user’s action. If there were no code, nothing would happen in response to the user’s action. *See* Schmandt Decl. ¶¶ 87, 90.

3. Express Mobile’s Reply Brief

Defendants admit that “command” has a plain meaning, but nevertheless assert this term must be construed in an attempt to improperly narrow “commands *to* said virtual machine” to refer to code *in* an instruction set of a virtual machine. Defendants’ counsel and expert previously agreed that no construction was necessary for this term and applied it freely without any construction. Ex. 3D, *Svanaco* JCCC at 4; Ex. 3B, *Svanaco* Schmandt Inval. Rep. at ¶¶ 74, 86, 98, 110, 158, 212, 217-18, 222, 224, 226, 242, 315-18, 341344, 409, 420-22, 606. Defendants and their expert changed their position and now argue that virtual machine commands should be limited to code in the instruction set, even though numerous commands discussed in the specification are high-level display formatting commands that cause the virtual machine to perform the appropriate formatting and display actions, which are commands *to*—and not *in*—the virtual machine. Ex. 2 ¶ 34; ’397 at 66:1-2, 69:2-4, 70:14-16; Ex. 4 ¶¶ 27-30. Defendants’ construction is narrower, contrary to the plain and ordinary meaning of the claim language or the word “command,” and should be rejected.

⁹ Mr. Weadock also cites several dictionary definitions of “command,” which XMO does not reference in its brief, that confirm “a command is an instruction to a computer program.” Weadock Decl. ¶ 34. Defendants agree, which is why Defendants’ proposed construction requires a “virtual machine command” to be in the instruction set of the virtual machine. XMO’s unsupported assertion that the phrase “in the instruction set” injects “needless ambiguity” into the term, *supra* at 19, can therefore be rejected. *See also* Ex. 10 at 238 (defining “instruction set” to mean the “set of machine instructions that a processor recognizes and can execute”).

4. Defendants' Sur-reply Brief

A “command” is a “virtual machine command” only if it is in a form that the virtual machine can process. While high level commands (e.g., “bold” or “italics”) may ultimately be executed by a virtual machine, these commands must first be converted into code for the instruction set of the virtual machine. Schmandt Decl. ¶¶ 87–89; Weadock Supp. Decl. ¶¶ 27–30 (citing no counterexamples).

C. “contemporaneously” / “substantially contemporaneously”

Express Mobile Construction	Defendants' Construction
Happening at the same period of time / Happening at the same period of time from a human perspective	at the same time / at the same time from a human perspective

1. Express Mobile's Opening Brief

Express Mobile proposes the construction that was previously agreed to and entered by this Court and construed by another court, which includes “period of time.” Ex. 1D, *eGrove* JCCC, Ex. 1B, *Svanaco* Order at 5. This disputed claim term relates to the timing of generating a display—i.e., a preview. Express Mobile's construction properly captures the duration between when a user selects a setting and when the preview is generated consistent with the specification—whether it's after 100 milliseconds or immediately after, but never at the same time. '397 at 10:16-53, 22:66-23:32 (100 milliseconds after polling loop detects a selection); Ex. 2 ¶¶ 36-38. Shopify's construction improperly omits the word “period” and would exclude all the disclosed embodiments for generating a preview. A claim construction that conflicts with the intrinsic record is improper. *See Kaneka Corp. v. Xiamen Kingdomway Grp. Co.*, 790 F.3d 1298, 1304 (Fed. Cir. 2015).

2. Defendants' Answering Brief

The parties' dispute centers on whether two events that happen *during the same period of time* are considered “contemporaneous” or whether they must happen *at the same time* for this to

be so. The parties' dispute arises from the fact that some claims of the '397 patent require generation of a display "contemporaneously" with user selected settings and some claims only require these events to occur "substantially contemporaneously." Defendants' proposed constructions reflect the different language used by the patentee and give meaning to the term "substantially," whereas XMO's do not. *See Applied Med. Res. Corp. v. U.S. Surgical Corp.*, 448 F.3d 1324, 1333 n.3 (Fed. Cir. 2006) ("In the absence of any evidence to the contrary, we must presume that the use of different terms in the claims connotes different meanings." (citation and alterations omitted)). Under XMO's proposed constructions, two events are contemporaneous if they happen in the same "period of time." The problem is that there is no upper limit on this period of time, and thus, it is impossible to determine when two events occur "contemporaneously," "substantially contemporaneously," or neither. Mr. Weadock confirmed that "[t]here are not precise temporal boundaries that for these terms" and that it was "very difficult to construe these terms—based on the guidance in the patent document itself." Defs' Ex. 3 (Weadock Tr.) at 251:1-10, 252:4-5.

XMO nonetheless relies on an excerpt from the specification that references a polling rate of "once every 100 milliseconds" as alleged support for its proposed construction of "contemporaneously." *Supra* at 21. But in the preceding paragraph of the specification, this polling loop is described as "***near continuous, at least from a human perception point of view.***" '397 patent at 23:21-24 (emphasis added). Thus, to the extent this passage of the specification bears on the meaning of the "contemporaneously" claim terms (the specification does not use that word), it appears to be referring to "substantially contemporaneous" events.

Defendants' proposed constructions would not "exclude all the disclosed embodiments for generating a preview," as XMO's expert suggests. Weadock Decl. ¶ 38. These embodiments are

encompassed by Defendants’ proposed construction of “substantially contemporaneously.” Schmandt Decl. ¶¶ 94-95. While XMO may now regret claiming the narrower requirement of “contemporaneous” events in some claims, the Court should decline XMO’s invitation to rewrite these claims to only require “substantially contemporaneous” events as XMO’s proposed inclusion of the phrase “period of time” would do. *MiiCs & Partners Am., Inc. v. Toshiba Corp.*, No. CV 14-803-RGA, 2016 WL 4573103, at *16 (D. Del. Aug. 31, 2016) (recognizing that courts routinely reject “efforts to rewrite unambiguous claim language, even where giving such language its plain meaning would result in nonsensical results”).

3. Express Mobile’s Reply Brief

No court has adopted Defendants’ construction of “at the same time” for “contemporaneously.” That is the meaning of “simultaneously”—not “contemporaneously.” Ex. 4Q at 1094. Moreover, one court specifically explained that the claim language is directed to the generation of a preview which “[b]y definition, the selection of a setting must occur first in time—the display is a response.” Ex. 1C at 9. A “contemporaneous” response does not occur literally “at the same time”—but “at the same *period* of time.” *See id.* at 10. The same is also true of a “contemporary” response. Ex. 4Q at 250 (first definition). Defendants’ construction of “contemporaneously” is both technically and logically impossible, as a preview cannot be generated at the same time as the user’s selection. Ex. 4 ¶¶ 31-33. Defendants’ reliance on the *MiiCs* case is misplaced. In that case the “claims [were] inconsistent with the specification.” In this case, by contrast, it is Defendants’ construction, not the claim, that is inconsistent with the preview-generation processes described in the specification. Defendants argue that only their constructions reflect the different language in these two terms, but both parties’ constructions identically add that “substantially” contemporaneously is from a human perspective.

Lastly, Defendants argue that its proposed constructions reflect the different language, “contemporaneously” and “substantially contemporaneously,” used by the patentee. But Defendants’ constructions for these two terms differ in the same way as Express Mobile’s constructions, namely “substantially” means it is from a human perspective.

4. Defendants’ Sur-reply Brief

The dictionary XMO relies on states that “simultaneous” is a synonym for “contemporaneous.” Ex. 4Q. Additionally, XMO’s proposed construction does not specify an upper limit on the “period of time” in which two events can occur and still be considered contemporaneous. As a result, XMO’s proposed construction fails to give meaning to the separate claim term “substantially contemporaneously.”

D. “build tool”

Express Mobile Construction	Defendants’ Construction
a tool operable to facilitate the building of one or more webpages or websites	a tool operable to construct one or more run time files and an associated database that describe, and when the run time file(s) are executed, produce web page(s). <i>(original proposal: a tool operable to construct a single run time file and an associated database that describe, and when executed, produce the web page)</i>

1. Express Mobile’s Opening Brief

Express Mobile’s construction for “build tool” comports with the claim language and specification. ’397 at 5:48-62. Shopify’s construction improperly imports limitations from one embodiment where the build tool is used to construct a “single run time file and an associated database.” ’397 at Abstract. But the specification describes other embodiments where a build tool generates multiple run time files. ’397 at 7:61-64 (“method for creating the run time files”). The prosecution history also confirms that the patentee expected build tools to construct more than one

run time file—“Specifically, the claim has been amended to recite a ‘browser-based build engine including build tools ... configured for constructing one or more run time files,’ to replace the original claim recitation ‘constructing a single run time file.’” DI 69, Ex. 8 at 9-10. One of skill would understand that a build tool is not as limited as Shopify’s construction. Ex. 2 ¶¶ 44-46.

2. Defendants’ Answering Brief

Defendants revised their original proposed construction¹⁰ to clarify that the build tool can construct more than one run time file, which addresses XMO’s only critique of Defendants’ original construction. *Supra* at 24-25. Defendants’ proposed construction is consistent with the intrinsic record and provides an explanation of what the claimed build tool actually is and does. *See* ‘397 patent at Abstract, Fig. 2; JCCC Ex. 8 at 9-10; Schmandt Decl. ¶¶ 99-100. XMO’s proposed construction should be rejected, because it confuses, rather than clarifies. XMO proposes defining the disputed term with the same term, *i.e.*, a “build tool” facilitates “building.” This does not shed any light on what a “build tool” actually is, nor is it clear what it means to “facilitate” the building of webpages. Schmandt Decl. ¶ 102.

3. Express Mobile’s Reply Brief

Express Mobile’s construction properly reflects the scope of the build tool described in the specification. Defendants’ revised construction still improperly requires constructing a database. This is contrary to the specification, which discloses that in some instances it is only needed to utilize the information stored in a database. ‘397 at 66:3-23; Ex. 4 ¶¶ 34-36. That is consistent with the claim language of independent claim 2 of the ‘397 patent, which recites “a database for storing information” in limitation (c), and then recites “a build tool” with a “run time file operating

¹⁰ Defendants’ revised construction of “build tool” is “a tool operable to construct one or more run time files and an associated database that describe, and when the run time file(s) are executed, produce web page(s).”

to **utilize information** stored in said database.” ’397 at 66:16-23. The word “construct” does not appear anywhere in the claims of the ’397 patent family, let alone in reference to the database. Numerous other proposed limitations in Defendants’ construction are redundant or unreasonable. Ex. 4 ¶ 35. And defendants’ citation to claim language proposed early in prosecution and long-since amended and superseded is simply not relevant. Ex. 4 ¶ 36.

4. Defendants’ Sur-reply Brief

Defendants’ proposed construction comes directly from the specification (with slight adjustments to address XMO’s initial critiques). *Supra* at 25. XMO asserts that the build tool need not construct the database, because claim 2 of the ’397 patent requires information in the database to be utilized. But the fact that the database is utilized after its construction does not change the explicit language of the specification. ’397 patent at Abstract, Fig. 2 (“BUILD TOOL CREATES AN OBJECT DATABASE”).

E. “multi-dimensional array structured database”

Express Mobile Construction	Defendants’ Construction
No construction necessary	database that adheres to a data model structured in the form of a multidimensional array, where the different dimensions of the array each correspond to a different layer of the overall website stack and where each layer has fields for each of its attributes

1. Express Mobile’s Opening Brief

The terms “multidimensional array” and “database” have agreed constructions. Shopify nevertheless maintains that “multidimensional array structured database” must also be construed. Shopify’s counsel previously agreed that “no construction [is] necessary other than the separate constructions of ‘multidimensional array’ and ‘database.’” Ex. 1B, *Svanaco* Order at 7. The term “structured” does not need to be independently construed, and certainly should not be construed

according to Shopify’s five-line construction—including the terminologies of “different layer” and “overall website stack” that do not appear anywhere in the claims or the specification. Ex. 2 ¶ 47.

2. Defendants’ Answering Brief

XMO’s argument that this term does not require construction separately from “multidimensional array” and “database” fails to acknowledge that the term “multi-dimensional array structured database” refers to a distinct concept coined by Mr. Rempell himself. Ex. 11 (Rempell Tr.) at 274:3-275:16 (inventor’s testimony that this term refers to “unique” concept in the context of the claimed invention); Defs’ Ex. 3 (Weadock Tr.) at 123:16-124:17 (agreeing that this term came from the inventor). At his deposition in a prior case, Mr. Rempell testified that this term means what Defendants propose:

Q: So let me try this one more time from the top. Multidimensional array structure database is *a database that adheres to a data model where it’s structured in the form of a multidimensional array where the different dimensions of the array each correspond to a different layer of the overall website stack?*

A: Excellently put.

....

Q: The overall structure of the database is, in fact, a multidimensional array where each dimension corresponds to a different layer within the website stack?

A: Right.

Q: Fine.

A: And *each layer has fields for each of the attributes* that could be used for whatever the purpose is.

Ex. 11 (Rempell Tr.) at 230:11-232:3 (emphasis added). Thus, Defendants’ proposed construction mirrors the meaning coined by the inventor and should be adopted. Schmandt Decl. ¶¶ 105-106.

3. Express Mobile's Reply Brief

Defendants admit their construction is not supported by the intrinsic evidence, and instead rely solely on inventor deposition testimony. Yet, inventor testimony is generally irrelevant to claim construction, and inventor testimony must be rejected where, as here, it is inconsistent with the intrinsic evidence. *Howmedica Osteonics Corp. v. Wright Med. Tech., Inc.*, 540 F.3d 1337, 1346 (Fed. Cir. 2008) (collecting cases); *Convolve, Inc. v. Compaq Computer Corp.*, 812 F.3d 1313, 1319 (Fed. Cir. 2016) (rejecting inventor testimony where it was the “only evidence” and was “not enough to overcome” the intrinsic evidence). Here, Defendants’ construction, which limits a “multi-dimensional array structured database” to storage of array formatted data, is inconsistent with the specification, which states that it can include both conventional and array formatted data. ’168 at 2:13-17; Ex. 4 ¶ 37.

4. Defendants’ Sur-reply Brief

The claimed database must store “multi-dimensional arrays of various multimedia objects.” ’397 patent at 2:5–9. Defendants’ proposed construction is consistent with this disclosure and reflects the inventor’s special definition of this term, which does not otherwise have meaning in the art.

F. “wherein said elements include multimedia objects . . .”

Express Mobile Construction	Defendants’ Construction
No construction necessary	wherein said elements include at least two multimedia objects that are selected from a group that contains only a color, a font, an image, an audio clip, a video clip, a text area, or a URL

1. Express Mobile’s Opening Brief

These terms are standard Markush claim limitations and needs no construction. The listed elements are “selected from the group consisting of” at least one of the objects in the list—that is,

the listed options are alternatives. *In re Harnisch*, 613 F.2d 716, 719-20 (C.C.P.A. 1980) (*Markush* claims are “‘alternative’ in form”). Shopify’s purported clarification is unnecessary, confusing, and improperly narrow. Shopify attempts to narrow this term by injecting the limitation of “at least two multimedia objects.” Although “multimedia objects” is a plural noun, it does not necessarily mean “at least two.” Courts, including this one, have repeatedly construed a plural noun to mean one or more.¹¹ Although a plural noun is often used to refer to more than one thing, the plural is also used to capture the singular in everyday speech. *Id.* The terms elements and multimedia objects therefore mean that there can be one or more of these. Ex. 2 ¶¶ 48-49.

2. Defendants’ Answering Brief¹²

The parties’ dispute about this claim term is whether the phrase “said elements include multimedia objects” requires at least two elements and multimedia objects (Defendants’ position) or whether a single element/object satisfies the claim limitation (XMO’s position).

When a claim uses a plural term, the question of whether a singular item falls within claim scope depends on the context in which the term is used, including the claims and the specification as a whole. *See Electro Sci. Indus., Inc. v. Dynamic Details, Inc.*, 307 F.3d 1343, 1347-50 (Fed. Cir. 2002). Here, the claim language and specification of the ‘397 patent indicates that the claim limitation requires two or more “elements” and multiple “multimedia objects” to be selected from the enumerated group. First, the antecedent for “said elements” is the plural term “elements on a

¹¹ *See e.g., In re Omeprazole Patent Litig.*, 84 F. App’x 76, 80 (Fed. Cir. 2003) (finding the plural term “materials” means “one or more layers of materials”); *Versa Corp. v. Ag-Bag Int’l Ltd.*, 392 F.3d 1325, 1327 (Fed. Cir. 2004); *IBSA Institut Biochimique, S.A. v. Teva Pharm. USA, Inc.*, No. 1:18-CV-00555-RGA, 2019 WL 3936656, at *3 (D. Del. Aug. 20, 2019) (“finding that “hormones” in the claim refers to one or more hormones”).

¹² XMO’s opening brief combines this claim term with the separate claim term “wherein said elements are selected from the group consisting of a button, an image, a paragraph, a frame, a table, a form and a vector object.” *Supra* at 28-29; JCCC at 10-11 (listing the two terms separately). The disputed issue for the two claim terms is analogous, and thus, for the reasons discussed below, Defendants’ proposed constructions should be adopted for both “said elements” terms.

website,” ‘397 patent at claim 2, and the specification does not describe any websites with just one “element.” *See* Schmandt Decl. ¶ 109. Second, if the applicant had intended for “said elements” to mean “at least one of said elements,” he would have used this language, as he did in other claims. *See* ‘397 patent claims 8, 12, 13, 18, 20, 28, 34; *see also* Schmandt Decl. ¶ 111.

The cases XMO cites in support of its proposed construction (*supra* at 29 n.11) stand for the uncontroversial proposition that in some instances, plural language in claims can be broad enough to cover a singular meaning.¹³ These cases do not suggest, however, that plural usage is always construed to include singular meaning. Instead, as other cases confirm, consistent with Defendants’ proposed construction and ordinary usage, plural terms are often construed to mean more than one. *See, e.g., Leggett & Platt, Inc. v. Hickory Springs Mfg. Co.*, 285 F.3d 1353, 1357 (Fed. Cir. 2002) (construing “support wires” to mean more than one wire); *Shire Dev. LLC v. Amneal Pharm. LLC*, No. 15-2865 (RBK/JS), 2016 WL 4119940, at *11 (D.N.J. Aug. 2, 2016) (construing phrase “consisting of compounds” to require multiple compounds and reasoning that “[i]f the patentee wanted to have only one [] compound, then the patentee could have drafted the claim accordingly”).

3. Express Mobile’s Reply Brief

Defendants failed to explain why these standard *Markush* claim limitations need construction. For claim 5, Defendants have also failed to show that the plural noun “multimedia objects” excludes the singular, contrary to everyday speech. Although the antecedent for “said elements” are website elements, it does not follow that at least two of these elements must be

¹³ XMO’s argument that *Markush* claims list options as “alternatives” does not bear on the parties’ dispute. *Markush* claims can permit or require multiple elements in the enumerated list depending on the particular claim language. *E.g., Fresenius USA, Inc. v. Baxter Int’l, Inc.*, 582 F.3d 1288, 1292 (Fed. Cir. 2009). As described above, the context is determinative of whether the claim term carries a singular or plural meaning, and the context here indicates a plural meaning.

selected from the *Markush* group. Claim differentiation supports Express Mobile’s position. Claim 8 claims “[t]he apparatus of claim 2, wherein *said elements* include *one or more objects on a web page.*” ’397 at 66:41-42. The patentee contemplated that the plural “said elements” of claim 2 could be just be “one . . . object.” Defendants’ did not dispute this. Ex. 4H, Schmandt Dep. at 192:8-17; Ex. 4 ¶ 38. Defendants’ assertion that the claim had to be written as “at least one multimedia object” is thus wrong.¹⁴ Finally, neither claim limitation limits the claim as a whole to “only” the website elements or objects recited in the limitations. Both claims 5 and 6 of the ’397 patent depend from method claim 1, which is an open, “comprising” claim. The *Markush* limitations restrict which elements or objects meet those limitations—nothing more.

4. Defendants’ Sur-reply Brief

The claim language relied upon by XMO in its reply confirms that Defendants’ construction is correct, because the applicant knew how to draft claims with language that includes both singular and plural (e.g., the phrase “one or more”) when that was the intent, and did not do so here. *Supra* at 31. XMO’s characterization of these claim terms as “open, ‘comprising’” claims is wrong based on the “consisting of” language explicitly used in both terms. *Supra* at 31; MPEP § 2111.03, 2117.

G. “means for storing information representative of selected style in said database”

Express Mobile Construction	Defendants’ Construction
This limitation is governed by 35 U.S.C. § 112(f).	Governed by § 112, ¶ 6

¹⁴ The cases cited by Defendants are distinguishable or support Express Mobile’s position. *See Leggett & Platt, Inc. v. Hickory Springs Mfg. Co.*, 285 F.3d 1353, 1357 (Fed. Cir. 2002) (the parties did not dispute that the plural noun “support wires” means multiple wires); *Electro Sci. Indus., Inc. v. Dynamic Details, Inc.*, 307 F.3d 1343, 1350 (Fed. Cir. 2002) (the court found that “[a] single workpiece can encompass multiple circuit boards.”); *Shire Dev. LLC v. Amneal Pharm. LLC*, No. 15-2865 (RBK/JS), 2016 WL 4119940, at *10 (D.N.J. Aug. 2, 2016) (noting that in a related case, substances was construed to mean one or more of the substances).

Express Mobile Construction	Defendants' Construction
<p>Function: storing information representative of selected style in a database</p> <p>Structure: a computer having a browser and a virtual machine capable of generating a display programmed to perform one of the processes described in 22:17-58, 32:26-43, Figs. 8 and 13 and their equivalents</p>	<p>Function: storing information representative of selected style in said database</p> <p>Structure: None disclosed; indefinite</p>

1. Express Mobile's Opening Brief

The parties agree that this term is subject to 35 U.S.C. § 112, ¶ 6, and agree on the claimed function. But contrary to Shopify's contention, the specification describes the corresponding structure to be a computer having a browser and a virtual machine capable of generating a display programmed to perform one of the processes described in 22:17-58, 32:26-43, Figs. 8 and 13 and their equivalents. Ex. 2 ¶ 50. The specification teaches algorithms that capture user selections of styles and storing representative data in databases. Ex. 2 ¶¶ 51-52. This term is thus not indefinite.

2. Defendants' Answering Brief

The parties agree that this is a means-plus-function claim term subject to 35 U.S.C. § 112 ¶ 6 and on the claimed function, which is performed by a special purpose computer. JCCC at 11. Defendants propose that the claim term is indefinite, because there is no corresponding structure. *Noah Sys., Inc. v. Intuit Inc.*, 675 F.3d 1302, 1305 1313 (Fed. Cir. 2012) (holding that a mean-plus-function limitation performed by software must “contain an algorithm to perform the function” in the specification or the claim is indefinite); *see also Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1352 (Fed. Cir. 2015) (holding that identified structure is deemed the required “corresponding structure” only “if the intrinsic evidence clearly links or associates that structure to the function recited in the claim”).

XMO points to several passages in the specification as purported corresponding structure, but these general references to “updating” information do not provide sufficient structure for the claimed function of “storing information” in a database. Schmandt Decl. ¶¶ 119-22. The cited disclosures state only that the “updat[ing]” involves a system of flags and high watermarks and are insufficiently precise to constitute a description of the claimed function of “storing information.” See *id.*; *Advanced Ground Info. Sys., Inc. v. Life360, Inc.*, 830 F.3d 1341, 1349 (Fed. Cir. 2016) (affirming indefiniteness determination based on lack of sufficient structure for the claimed function of symbol generation, where the specification described “in general terms, that symbols are generated based on the latitude and longitude of participants” but “fail[ed] to disclose an ‘algorithm’ or description as to how those symbols are actually ‘generated’”); *Blackboard, Inc. v. Desire2Learn, Inc.*, 574 F.3d 1371, 1385 (Fed. Cir. 2009) (holding that the relevant inquiry is “whether the specification contains a sufficiently precise description of the ‘corresponding structure’ to satisfy section 112, paragraph 6, not whether a person of skill in the art could devise some means to carry out the recited function”). Moreover, the specification teaches that the database must be “compact and efficient in order to meet the performance requirements for the runtime process” and is unlike “conventional databases” in part because of its use of multidimensional arrays. Schmandt Decl. ¶ 123 (quoting ‘397 patent 22:7-9, 2:5-9). A person of ordinary skill in the art would not readily know—and the specification does not teach—how to store information in such a database. *Id.*

3. Express Mobile’s Reply Brief

Defendants argue that the claimed function of “‘storing information’ in a database” is performed by “a special purpose computer,” which allegedly lacks sufficient structural support. But even general-purpose computers have been found to be sufficient structural support for the

function of storing information.¹⁵ Furthermore, the '397 patent specification discloses specific algorithms for capturing user selections of styles and storing representative data in arrays, and the POSA would have been readily capable of understanding them. Ex. 2 ¶¶ 50-52; Ex. 4 ¶¶ 39-42. In addition, the specification includes flow charts, explaining that the build engine updates the internal database with regard to the storing function. Ex. 2 ¶ 52; Fig. 13. Defendants incorrectly argue that the structure cited by Express Mobile is limited to only “updating” and not “storing.” First, the specification teaches “a data field is added, changed or deleted” which are the three fundamental operations of data storage, and the storage of database data in arrays. 22:17-58, 42:1-35; Ex. 4 ¶ 41. Second, updating information in a computer necessarily includes storing information. *Id.* The specification sufficiently describes structure that is clearly linked to the recited function of storing information. *Copper Innovations Grp., LLC v. Nintendo Co., Ltd*, No. CIV.A. 07-1752, 2009 WL 8080100, at *25 (W.D. Pa. Oct. 6, 2009) (sufficient structure using “flow chart showing how the software controlling [the component at issue] works.”); *Finisar Corp. v. DirecTV Grp., Inc.*, 523 F.3d 1323, 1340 (Fed. Cir. 2008) (algorithm may be expressed “in any understandable terms including as a mathematical formula, in prose, ... as a flow chart, or in any other manner that provides sufficient structure.”); Ex. 4. ¶ 40.

Defendants rely on cases with no or far less disclosure. *See Advanced Ground Info. Sys., Inc. v. Life360, Inc.*, 830 F.3d 1341, 1349 (Fed. Cir. 2016) (addressing function of symbol

¹⁵ *In re Katz Interactive Call Processing Patent Litig.*, 639 F.3d 1303, 1316 (Fed. Cir. 2011) (finding definiteness because storing function “can be achieved by any general purpose computer without special programming.”); *Kit Check, Inc. v. Health Care Logistics, Inc.*, No. 2:17-CV-1041, 2019 WL 4142719, at *9 (S.D. Ohio Aug. 30, 2019) (“storing information is a function that a general purpose computer can perform.”); *Pavilion Techs., Inc. v. Emerson Elec. Co.*, No. A-05CA-898-SS, 2008 WL 11403181, at *2 (W.D. Tex. Aug. 26, 2008) (“District Courts throughout the country have routinely determined structure corresponding to a computer-implemented storing function requires no special algorithm or other programming to satisfy section 112.”).

generation, not storing information, and finding *no disclosure* of the claimed component); *Blackboard, Inc. v. Desire2Learn, Inc.*, 574 F.3d 1371, 1385 (Fed. Cir. 2009) (addressing assigning access, not storing information, and explaining that the identified “structure” was a bare “abstraction” performed by “some undefined component . . . essentially a black box”). Defendants’ argument that the disclosure is not “sufficiently precise” to support the claimed function is therefore misplaced and unsupported. Defendants’ attempt to impart a “compact and efficient” database requirement is also inappropriate. Ex. 4 ¶ 42.

4. Defendants’ Sur-reply Brief

XMO cites several cases addressing claims to storing information generally, not means for storing information in the claimed database, which XMO does not seriously contend can be performed by a general purpose computer. Furthermore, Defendants are not arguing that the form of the alleged algorithm identified by XMO as corresponding structure is insufficient per se. Instead, the deficiency is that the high-level description of “updating” information in the specification is not sufficient structure for performing the claimed functions. Schmandt Decl. ¶¶ 119–123. Even if a POSA could construct an algorithm for storing information, that does not make the term definite. *Blackboard, Inc. v. Desire2Learn, Inc.*, 574 F.3d 1371, 1385 (Fed. Cir. 2009) (holding that the relevant question for indefiniteness is whether the specification includes “a sufficiently precise description of the ‘corresponding structure’ to satisfy section 112, paragraph 6, not whether a person of skill in the art could devise some means to carry out the recited function”).

H. “means for storing information representative of said selected . . .”

Express Mobile Construction	Defendants’ Construction
This limitation is governed by 35 U.S.C. § 112(f).	Governed by § 112, ¶ 6
Function:	Function: storing information representative of selected style in said database

Express Mobile Construction	Defendants' Construction
<p>storing information representative of selected description in a database</p> <p>Structure: a computer having a browser and a virtual machine capable of generating a display programmed to perform one of the processes described in 22:17-58, 35:24-33, 36:5-7, 33-39, 37:13-15, 34-39, Figs. 8, 17, 18 and 19 and their equivalents</p>	<p>Structure: None disclosed; indefinite</p>

1. Express Mobile's Opening Brief

The parties agree that this term is subject to 35 U.S.C. § 112, ¶ 6, and agree on the claimed function. Contrary to Shopify's contention, the specification plainly describes the corresponding structure to be a computer having a browser and a virtual machine capable of generating a display programmed to perform one of the processes described in 22:17-58, 35:24-33, 36:5-7, 33-39, 37:13-15, 34-39, Figs. 8, 17, 18 and 19 and their equivalents. Ex. 2 ¶ 53. The specification teaches algorithms that capture user selections of descriptions and storing representative data in internal databases. Ex. 2 ¶¶ 54-55. This term is also not indefinite.

2. Defendants' Answering Brief

The parties agree that this term is subject to 35 U.S.C. § 112 ¶ 6 and on the claimed function. JCCC at 11. This claim term is indefinite for the same reasons discussed above, with respect to the other "means for storing" term. This term is also indefinite because the portions of the specification XMO relies on for corresponding structure are not "clearly link[ed]" to the function of "storing information representative of said selected description." *Williamson*, 792 F.3d at 1352. The "selected description" refers specifically to a transition or timeline. '397 patent at claims 14, 23. XMO points to ten separate excerpts from the specification that allegedly provide sufficient structure for performing the claimed function, Weadock Decl. ¶¶ 5356, but none of these

excerpts describe structure clearly linked to the function of storing a transition or timeline, as required by the claims. Schmandt Decl. ¶ 126.

3. Express Mobile’s Reply Brief

Defendants only assert there is not a clear linkage to the claimed function. Here, the specification provides disclosure for storing such transition or timeline information, including that the build engine performs the process of updating the database to store that information. Ex. 2 ¶ 55; Figs. 17-19; Ex. 4 ¶¶ 43-44. Defendants’ suggestion that the flowcharts and algorithms disclosed are not “clearly linked” to transitions or timelines is without merit—for example, Figure 18 and its related description in the specification concern “transformation settings and technology,” and Figure 19 concerns “object time lines and technology.” Ex. 4 ¶¶ 43-44.

4. Defendants’ Sur-reply Brief

This “means for storing” term is indefinite for the additional reason that XMO fails to identify a link between the cited portions of the specification and the claimed function. Schmandt Decl. ¶ 128.

I. “a timelines / timelines”

Express Mobile Construction	Defendants’ Construction
Independent process that defines one or more values for an object, including its appearance, animation, speed, and/or resolution over time	sequences of changes that define the attributes of a text button or image object as the changes occur

1. Express Mobile’s Opening Brief

Express Mobile’s construction is consistent with the language in the specification and was previously adopted by this Court. Ex. 1D, *eGrove* JCCC. The specification expressly states: “[a] time line is an independent asynchronous process,” and that the timeline values include the object’s “appearance,” “animation type, speed, and animation resolution.” ’397 at 36:50-52, 31:22-40.

Shopify's construction improperly limits timelines to only a text button or image object and is contradicted by the intrinsic record. While certain exemplary embodiments of the timeline feature only reference text button and image objects, the specification is not so limited. Ex. 2 ¶¶ 56-57. For example, Figure 20 discloses a time line associated with a web page and a web page thread object. '397 at Fig. 20. The specification also discloses that a time line can be associated with all objects defined on a web page. '397 at 48:47-54. Shopify's construction would exclude preferred embodiments, which is "rarely if ever correct." *See Kaneka Corp.*, 790 F.3d at 1304.

2. Defendants' Answering Brief

The specification expressly defines a time line: "A time line is an independent asynchronous process that defines the existence of a given text button or image object." '397 patent at 36:50-52. Defendants' construction reflects this express definition and should be adopted.¹⁶ Schmandt Decl. ¶¶ 130-31; *Jack Guttman, Inc. v. Kopykake Enterprises, Inc.*, 302 F.3d 1352, 1360 (Fed. Cir. 2002) ("Where, as here, the patentee has clearly defined a claim term, that definition usually is dispositive; it is the single best guide to the meaning of a disputed term." (alterations and quotation omitted)).

XMO's proposed construction improperly broadens the term beyond the applicant's express definition to encompass *any* button, element, or object, not just a "text button or image object," referenced in the applicant's definition. In support of its proposed construction, XMO selectively quotes the patentee's definition of "time line" and omits the portion of the definition that limits a time line to "defining the existence of a given text button or image object." *Supra* at 37; '397 patent at 63:50-52; Schmandt Decl. ¶¶ 132-35. XMO cites other passages from the

¹⁶ Defendants' proposal uses the phrase "sequence of changes" instead of the applicant's phrase "independent asynchronous process" to simplify the construction. Defendants would not object, however, to adopting applicant's definition verbatim, to the extent the Court does not believe further simplification is necessary.

specification, but the first excerpt refers to “image objects,” consistent with Defendants’ proposal. ’397 patent at 31:2. The second excerpt refers to objects “defined by a time line in which there is a delayed entrance,” but does not suggest a time line for anything other than a text button or an image object.¹⁷ ’397 patent at 48:51-52.

3. Express Mobile’s Reply Brief

Defendants assert this term was defined in the specification.¹⁸ The specification, however, does not “clearly set forth” a definition. The purported definition was merely a description of exemplary embodiments of the timeline feature that reference text button and image objects. ’397 at 36:8-9, 19-20. The description of a timeline in that context does not rise to the level of a specific definition limiting all timelines to only these two examples. See *Thorner v. Sony Computer Entm’t Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012); *Linear Technology Corp. v. International Trade Com’n*, 566 F.3d 1049, 1057-59 (Fed. Cir. 2009) (need “clear intention to limit claim scope”). Defendants dismiss other examples from the specification that show timelines being used generically or associated with other objects. ’397 at Fig. 20 (discussing “web page time line”), 4:40-42, 7:67-8:9; Ex. 2 ¶ 56. Figure 33 of the patent likewise generically refers to “Object Time Line Technology,” and contemplates all web page objects to have their own timelines. *Id.* 52:65-53:10; Fig. 33, 48:47-54; Ex. 2 ¶ 57; Ex. 4 ¶¶ 45-47. Defendants fail to account for these clear disclosures.

¹⁷ XMO also cites Figure 20, which refers to the synchronization of web page time lines with object time lines. *Supra* at 38. But nothing in this figure or the associated text suggests that a “timeline” recited in the claims exists for anything other than a text button or image object.

¹⁸ Defendants’ construction changes “independent asynchronous process” to “sequences of changes”, “existence” to “attributes” and adds “as the changes occur” to the alleged definition.

4. Defendants' Sur-reply Brief

Defendants' construction should be adopted, because the definition of "timeline" in the patent is not linked to any specific embodiment

J. "transition"

Express Mobile Construction	Defendants' Construction
No construction necessary	<p>animation by which a web page or web page element visually changes in the browser display</p> <p><i>(original proposal: animation by which a web page or web page element visually enters or exits the browser display)</i></p>

1. Express Mobile's Opening Brief

No construction is necessary for this term, and its plain and ordinary meaning should apply. "Transition" is a commonly understood English word, understood by a person of skill in the art, particularly in view of the specification. Ex. 2 ¶ 58. The term "transition" is used in the specification in connection with animation to refer to changing an element's property or properties over a given duration, consistent with the term's common usage. Ex. 2 ¶ 59. Shopify's proposed construction improperly limits the scope of the term "transition" to "visually enters or exits the browser display." But the specification provides examples of text button object animation transitions that neither "enter" nor "exit" the browser display, but merely grow and shrink within a web page. '397 at 53:38-52, 54:34-36. Shopify's construction: (1) impermissibly imports limitations from exemplary embodiments; and (2) violates the rule that "words of a claim are generally given their ordinary and customary meaning." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13, 1323 (Fed. Cir. 2005).

2. Defendants' Answering Brief

Defendants' revised construction for this term addresses the concerns XMO raised for the first time in its opening brief.¹⁹ While XMO has refused to agree to Defendants' proposed construction, there does not appear to be any pending dispute. Because Defendants' proposed construction helps explain what a "transition" is in the context of the claimed invention, the Court should adopt Defendants' proposed construction.

3. Express Mobile's Reply Brief

Defendants incorrectly assert that its revised construction addresses Express Mobile's concerns. First, "transition" is a commonly understood English word and needs no construction. Ex. 2 ¶ 59. Defendants fail to rebut that "[t]he person of ordinary skill would understand the word 'transition' to refer to generic changes that could be shown on a display, consistent with ordinary usage of the term." See Ex. 2 ¶ 59; Schmandt Decl. ¶¶ 136-138. Second, the claim language and the specification establish that although transition can be expressed through an animation, transition is different from and broader than animation. '397 at 66:38-39, 42-43 ("wherein said description of elements is a transition or an animation"); 67:9-10 ("wherein said description of elements is a transition, an animation or a timeline"); 8:1-3; 36:56-59. Moreover, claim 27 of the '397 patent refers to only an "animation"—and not a "timeline"—further confirming that transition is different from an animation. '397 at 67:64-67. Defendants' expert admitted that animations are but one type of "transition," and that his opinion was based on his (incorrect) viewpoint that "animation is the only type of transition disclosed in the specification." Ex. 4H, Schmandt Dep. at 301:15-302:4; Ex. 4 ¶¶ 45-47.

¹⁹ Defendants' revised construction of "transition" is an "animation by which a web page or web page element visually changes in the browser display."

4. Defendants' Sur-reply Brief

XMO now contends that a transition is not an animation, but it fails to explain why. *Supra* at 41. Defendants' proposed construction, on the other hand, is consistent with how the term is used in the specification and would be understood by a POSA.

K. "child element / child element style / child / child object / child button . . ."

Express Mobile Construction	Defendants' Construction
An element with one or more properties that depends on another element	the relationship of an element to its immediate predecessor in a tree structure <i>(original proposal: Element/object/button that inherits properties from its parent)</i>

1. Express Mobile's Opening Brief

Shopify's proposed construction of "child" improperly adds the limitation of to "inherit". To inherit" or "inheritance" is a term of art in computer science that refers to a specific relationship in object-oriented programming. Ex. 2 ¶ 61. Shopify's construction is contradicted by the intrinsic evidence. Ex. 2 ¶¶ 60-63. The claims do not state or imply that a child object inherits properties from a parent object, but rather describe a user separately inputting properties (e.g., a style) for a child object: "wherein the build engine is configured to accept user input to associate a style with child button and child image objects." See e.g., '168 at 65:10-12. The specification also contradicts Shopify's construction. The term "child" appears more than 50 times throughout the specification and is used to describe a general dependency relationship of one object (i.e., the child) to another object (i.e., the parent). The dependency can be temporal or spatial ('397 at 31:22-40, 64:16-23), but nowhere in the specification is a child described as inheriting properties from its parent.

2. Defendants' Answering Brief

Defendants' revised construction moots XMO's concern that inheritability is not necessarily a requirement of a child "element" / "element style" / "object" / "button" / "image objects" and defines the term as the "relationship of an element to its immediate predecessor in a tree structure," without an inheritability requirement. This revised construction captures the relationship between child and parent and gives meaning to the word "child" in the claim terms at issue. *See Schmandt Decl.* ¶¶ 140-42.

XMO's proposed construction is too broad because it requires only some "dependency" between the two elements and does not accurately capture the concept that a parent-child relationship in this context requires the child element to be created from or under the parent object. During Mr. Weadock's deposition, he was repeatedly asked what the term "depends" means in XMO's proposed construction, and it became clear that XMO intends for almost any dependency to be considered a parent/child relationship. *See Defs' Ex. 3 (Weadock Tr.)* at 145:3-10, 146:5-15 (stating belief that an "If 'A,' then 'B'" dependency would constitute a parent-child relationship). Mr. Weadock was asked repeatedly whether he could think of any dependency that would not be considered a parent-child relationship under XMO's construction, and he was not able to identify any. *Id.* at 145:20-151:5. A construction of "child element" this broad is inconsistent with how a person of ordinary skill in the art would understand the term, is unsupported by the intrinsic evidence, and would render the term "child" virtually meaningless.²⁰ *See Schmandt Decl.* ¶¶ 140-42.

²⁰ Taken to the extreme, XMO's proposed construction would mean if two elements depend on each other in some way, they can both be considered child elements. Such a result finds no support in the intrinsic or extrinsic evidence.

3. Express Mobile's Reply Brief

Defendants' revised construction adds new requirements regarding "immediate predecessor in a tree structure," but the phrases "predecessor" and "tree" do not appear in the specification. The passages cited by Mr. Schmandt do not describe any tree structure, but rather describe the kind of temporal and logical dependency captured in Express Mobile's construction. Ex. 4 ¶¶ 49-50. Defendants attack Express Mobile's construction by mischaracterizing Mr. Weadock's testimony. Mr. Weadock explicitly rejected the notion that Defendants' simplified "if 'A' then 'B'" dependency would necessarily constitute a parent-child relationship. Ex. 4K, Weadock Dep. at 157:12-158:16, 159:8-160:7. Express Mobile's construction is consistent with how the term child is used throughout the specification to describe a general dependency relationship of one object (i.e., the child) to another object (i.e., the parent). '397 at 31:22-40, 13:8-13; Ex. 2 ¶ 63.

4. Defendants' Sur-reply Brief

XMO contends its construction is limited to certain types of dependencies described in the specification. *Supra* at 44. But XMO's construction does not limit the types of dependencies at all, and is thus incorrect. Schmandt Supp. Decl. ¶¶ 55-56.

L. "an interface configured for . . ."

Express Mobile Construction	Defendants' Construction
No construction necessary	Governed by 112, ¶ 6. Function: present a viewable menu of a user selectable panel of settings, accept a plurality of settings from said user selectable panel of settings to form an assembly of settings, and generate the display in accordance with said assembly of settings contemporaneously with the acceptance thereof, at least one of said user selectable settings of said panel of settings being operable to generate said

Express Mobile Construction	Defendants' Construction
	display through commands to said virtual machine Structure: None, claim is indefinite.

1. Express Mobile's Opening Brief

Shopify argues that this term is means-plus-function even though the limitation does not use the word “means.” To overcome the presumption against the application of § 112, ¶ 6, Shopify must show by a preponderance of the evidence that “an interface” as used in the claim is nothing more than a nonce word. *See Apex Inc. v. Raritan Computer, Inc.*, 325 F.3d 1364, 1372 (Fed. Cir. 2003). A person of ordinary skill in the art would understand that the word “interface,” as used in claim 37 of the '397 patent, is used not as a generic term or black box recitation of structure or abstraction, but rather as a specific reference to graphical user interfaces presented through a web browser. Ex. 2 ¶¶ 64-65. In the 170-plus cases that cite to *Williamson* and reference “interface,” only one court found the term “interface” to be means-plus-function, but the Federal Circuit promptly reversed and held that the term “interface” in “user interface code” is not a generic term but rather a specific reference to conventional graphical user interface programs or code. *Zeroclick, LLC v. Apple Inc.*, 891 F.3d 1003, 1007 (Fed. Cir. 2018).²¹

2. Defendants' Answering Brief

The parties dispute whether this the term is subject to 35 U.S.C. § 112 ¶ 6, and if so, whether the specification discloses a sufficient structure to avoid indefiniteness. The claim term should be treated as a means-plus-function term, notwithstanding the absence of the phrase “means for,” because the presumption against means-plus-function treatment is rebutted where the claim term

²¹ *See Intellectual Ventures II LLC v. BITCO Gen. Ins. Corp.*, No. 6:15-CV-59, 2016 WL 125594, at *14 (E.D. Tex. Jan. 11, 2016) (Gilstrap, J.); *TZU Techs., LLC v. Vibease, Inc.*, No. LACV1504907JAKJPRX, 2016 WL 6836951, at *7 (C.D. Cal. May 6, 2016).

at issue is a “nonce” word that does not connote any more structure than the term “means.” *Williamson v. Citrix Online LLC*, 792 F.3d 1339, 1350 (Fed. Cir. 2015). Such is the case with the term “interface,” which is a generic term defined as “the *means* by which a computer user gives instructions to and receives information from a computer” and does not connote sufficient structure a person ordinary skill in the art. Ex. 7 at 215; Schmandt Decl. ¶¶ 145-47.

Mr. Weadock looks to usage of the term “interface” in the specification, Weadock Decl. ¶ 65, but that is not the correct legal standard for determining whether a claim term connotes sufficient structure to avoid means-plus-function treatment. *See Williamson*, 792 F.3d at 1349 (holding that the test is whether a person of ordinary skill in the art would understand the claim term to have a sufficiently definite meaning as the name for structure that performs the claimed function); *see also Avocent Huntsville, LLC v. ZPE Sys., Inc.*, No. 17-cv-04319-WHO, 2018 WL 4677437, at *8 (N.D. Cal. Aug. 23, 2018) (rejecting Mr. Weadock’s opinion that “module” was not a nonce word because a person of ordinary skill in the art would know what it was).

XMO also asserts that no court has found “interface” to be governed by § 112, ¶ 6. Even if that were dispositive, it is incorrect. Indeed, XMO ignores a decision from this district finding just that. *See Intellectual Ventures I, LLC v. Ricoh Americas Corp.*, Civ. No. 13-474-SLR-SRF, 2016 WL 93847, at *4 (D. Del. Jan. 7, 2016) (construing “an interface for providing” in accordance with means-plus-function principles). Additionally, in *Zeroclick, LLC v. Apple Inc.* (cited by XMO), the claim limitation at issue was a *conventional* graphical user interface. 891 F.3d 1003, 1007 (Fed. Cir. 2018). The conclusion that a conventional graphical user interface may have sufficient structure to one of ordinary skill in the art does not directly bear on whether the claimed “interface” connotes sufficient structure that allows it to perform the claimed function of “building a website through control of website elements.” Schmandt Decl. ¶ 147. Thus, the claimed

“interface” here does not, standing alone, connote sufficient structure to a person of ordinary skill in the art, and it should be construed in accordance with § 112, ¶ 6. And because the claimed “interface” is implemented via software and no sufficient algorithm is disclosed,²² Schmandt Decl. ¶¶ 148-49, the claim term is indefinite.

3. Express Mobile’s Reply Brief

Defendants incorrectly assert that Express Mobile’s expert only referred to the specification and therefore did not use the correct legal standard. Mr. Weadock unequivocally stated that a person of ordinary skill in the art would reasonably understand the word “interface” to have “a well-understood meaning that connotes structure”—as a “specific reference to graphical user interfaces presented through a web browser.” Ex. 2 ¶ 65. That is consistent with the specification, which discloses “[a] Browser Based Interface (the “Interface”) between the web designer and the build engine.” ’397 at 1:54-59. Defendants’ expert did not assert this term was a nonce word in his prior declarations. See Ex. 3A, *Svanaco* Schmandt Decl. In fact, he acknowledged that “after reading the specification, one of ordinary skill would understand that the interface is a graphical user interface presented through a browser.” Ex. 3B, Schmandt Inval. Rep. ¶ 232. He confirmed that he had previously expressed an invalidity opinion based on this understanding. Ex. 4H, Schmandt Dep. at 303:9-304:3. Thus, Defendants’ expert previously admitted that interface had a clear meaning and structure. He admitted again in this case that the ’397 patent discusses “a browser-based interface that a user can interact with,” and that a “user interface is a type of interface.” *Id.* at 303:1-8.

Defendants fail to distinguish Express Mobile’s cited cases and incorrectly argue that the *Zeroclick* case does not bear on this case, even though the court found that a “user interface” has

²² Neither XMO nor its expert directly address whether the specification discloses sufficient corresponding structure if the claimed interface is subject to § 112, ¶ 6.

a definite structure when it operates like a conventional graphical user interface. *Zeroclick, LLC v. Apple Inc.*, 891 F.3d 1003, 1007 (Fed. Cir. 2018). The specification here repeatedly describes the claimed interface as a standard user interface that operates like a conventional graphical user interface. '397 at 1:54-59, 2:51-53; Figs. 23, 37-63 (screenshots of graphical user interfaces); Ex. 4 ¶ 51. Defendants' reliance on *Intellectual Ventures I, LLC v. Ricoh Americas Corp.*, No. CV 13474-SLR-SRF, 2016 WL 93847, at *4 (D. Del. Jan. 7, 2016) is misplaced because the "interface" was a network communications interface and not a user interface at issue in this case.

4. Defendants' Sur-reply Brief

This term refers to a specific interface, not a conventional graphical user interface and therefore, the phrase "[i]nterface configured for" connotes no more structure than the term "means for." The specification does not provide sufficient structure and therefore, the claim term is indefinite. Schmandt Suppl. Decl. ¶ 57.

M. "run time engine / runtime engine"

Express Mobile Construction	Defendants' Construction
File that is executed at runtime that facilitates the retrieval of information from the database and generates commands to display a web page or website	file that is executed at runtime that reads information from the database and generates virtual machine commands to display a web page or website.

1. Express Mobile's Opening Brief

Express Mobile's construction was previously adopted by this Court and is supported by the intrinsic evidence. Ex. 1A, *eGrove* Order. Shopify incorrectly asserts that a runtime engine is limited to generating "virtual machine commands," and to reading "information from the database." The claims broadly recite that the "runtime engine is configured to generate the website from the objects and style data extracted from the provided database." '168 at 65:3-6. The specification also confirms that a run time engine is not limited to virtual machine commands but

can generate other types of commands to display a web page or website, such as commands for downloading image, audio and video files. *See Id.* at 5:49-68; Ex. 2 ¶¶ 66-69. In contrast, the phrase “virtual machine” in Shopify’s construction does not appear in any of the ’168 patent claims, and is not supported by the specification or prosecution history. Moreover, the prosecution history confirms that a run time engine can facilitate the retrieval of information from the database in a number of ways, including acting as a template shell that is combined with a database to generate the appropriate commands. DI 69, Ex. 10 at 6.

2. Defendants’ Answering Brief

The parties have two disputes regarding this term: first, whether the run time file must “read” information from the database (Defendants’ proposal) or merely “facilitate the retrieval of information from the database” (XMO’s proposal); and second, whether the run time file must generate “virtual machine commands to display a web page or website” (Defendants’ proposal) or merely “commands to display a web page or website” (XMO’s proposal).

Regarding the first dispute, the intrinsic record supports inclusion of the requirement that the runtime engine “read” information from the database. Schmandt Decl. ¶¶ 152-54. During prosecution, the applicant distinguished the claimed runtime engine from a prior art runtime engine and explicitly referred to “*the runtime engine reading and interpreting the external database.*”²³ JCCC Ex. 8 at 10 (emphasis added); *see also* JCCC Ex. 10 at 5-9; Schmandt Decl. ¶ 154. These prosecution statements are consistent with the disclosures of specification, all of which describe the runtime engine as “read[ing]” information from the database. *E.g.*, ‘397 patent at 5:52-57, 45:44-57, Fig. 2, Fig. 29; *see also* Schmandt Decl. ¶¶ 152-54. XMO’s proposal that the file

²³ Although these statements were made during prosecution of the ‘397 patent, they are applicable to “runtime engine” in the ‘168 patent, because the ‘168 patent is a continuation of the ‘397 patent. *Biovail Corp. Int’l v. Andrx Pharm., Inc.*, 239 F.3d 1297, 1301 (Fed. Cir. 2001).

“facilitates retrieval of information from the database” is not supported by the intrinsic record and the phrase “facilitates retrieval” is needlessly vague. XMO argues that its construction is supported by applicant’s statement during prosecution that “the run time engine can be considered to be a shell of a virtual machine command that is combined with the database to generate the appropriate virtual machine commands.”²⁴ *Supra* at 49 (citing JCCC Ex. 10 at 6). But a runtime engine being “combined” with a database supports Defendants’ construction, because it would involve the runtime engine reading the information from the database. Schmandt Decl. ¶¶ 155-56.

Regarding the second dispute, the intrinsic record likewise confirms that the runtime engine must generate “virtual machine commands” and not just generic “commands” as XMO proposes.²⁵ During prosecution, the applicant made this requirement clear, when he argued that the claimed runtime engine “is used to accept the attributes [from the database] and ***generate virtual machine commands***, which then generate a display.” JCCC, Ex. 10 at 5 (emphasis added); *see also id.* at 6-7 (additional statements by applicant that that the runtime engine generates virtual machine commands); Schmandt Decl. ¶¶ 155-56.

3. Express Mobile’s Reply Brief

Defendants attempt to add two extraneous limitations based on statements made during the prosecution history. But the statements Defendants rely on are not “clear and unmistakable” surrender of claim language that are required to meet the “exacting” standards for finding disavowal. *GE Lighting Solutions, LLC v. AgiLight, Inc.*, 750 F.3d 1304, 1309 (Fed. Cir. 2014);

²⁴ XMO does not cite this portion of the file history as part of its second argument that the runtime engine need not generate virtual machine commands. As this portion of the file history confirms, generating virtual machine commands is a requirement of the claimed runtime engine.

²⁵ XMO’s suggestion that the “run time engine is not limited to virtual machine commands,” *supra* at 48, misstates Defendants’ proposed construction. Defendants’ proposed construction does not exclude the possibility that the runtime engine may generate other commands, but it does require that the runtime engine to generate virtual machine commands to display a web page or website.

Cordis Corp. v. Boston Sci. Corp., 561 F.3d 1319, 1329 (Fed. Cir. 2009) (prosecution history statements must amount to a “clear and unmistakable” surrender). Defendants incorrectly assert that the applicant distinguished the claim based on the runtime engine’s reading from the external database. The applicant distinguished the present invention based on its separation of a run time engine from a database of user settings—“[i]n contrast, the claimed invention generates web pages using two features: a run time engine and a database of user settings.” JCCC Ex. 10 at 5. **How** the settings from the database are made available to the run time engine was not necessary to distinguish the claimed run time engine. The applicant’s statements about reading or interpreting the database are not a clear and unmistakable disavowal. Defendants also incorrectly assert that the specification **only** describes the run time engine as reading information from the database. But the specification discloses that either the runtime engine or browser can read from the database. ’397 at 45:53-56; Ex. 4 ¶¶ 52-54.

Defendants also incorrectly assert that the applicant distinguished the claimed runtime engine from prior art run time engines based on the generation of virtual machine commands. But as shown above, the applicant distinguished how “the claimed invention generates web pages” based on its use of “a run time engine and a database of user settings” and not the generation of virtual commands. JCCC Ex. 10 at 5. The claimed “commands to display a web page or website” can be virtual machine commands but do not have to be. The intrinsic evidence shows that run time engine commands to display a web page or website are not necessarily virtual machine commands (*e.g.*, commands for downloading image, audio and video files). Ex. 2 ¶¶ 66-68. Defendants’ expert summarily concludes that these examples do not result in the generation of a display. Schmandt Decl. ¶ 163. But a person skilled in the art would certainly understand commands for downloading image, audio and video files to be displayed in a web pages to be

“commands to display a web page or website.” Ex. 4 ¶ 55. Defendants’ proposed extraneous limitation is contrary to this Court’s prior construction and all other courts that have interpreted this limitation and should be rejected. *See* Ex. 1A, Ex. 1B, and Ex. 1C.

4. Defendants’ Sur-reply Brief

For this term, and others, XMO tries to avoid the prosecution history by suggesting that it is only relevant if it illustrates a “clear and unmistakable” disclaimer. *See supra* at 6, 51; *infra* at 63, 72-73, 78-79. XMO is incorrect. The prosecution history is relevant to claim construction, regardless of whether applicant statements rise to the level of a disclaimer. *E.g., Personalized Media Commc’ns, LLC v. Apple Inc.*, 952 F.3d 1336, 1345 (Fed. Cir. 2020) (holding that prosecution history is relevant to claim construction, even if applicant statements do not constitute a disclaimer); *Trustees of Columbia Univ. in City of New York v. Symantec Corp.*, 811 F.3d 1359, 1363 (Fed. Cir. 2016) (holding the same). Here, during prosecution and throughout the specification, the applicant repeatedly represented that the claimed runtime engine reads the database and generates virtual machine commands. Schmandt Decl. ¶¶ 152–163; Schmandt Suppl. Decl. ¶¶ 59–63.

N. “web page”

Express Mobile Construction	Defendants’ Construction
No construction necessary	a document viewable with a web browser <i>(original proposal: resource on the Internet that is identified by a single uniform resource locator and is accessed via an HTTP)</i>

1. Express Mobile’s Opening Brief

Over a decade ago, “web page” was found to need no construction because it was commonly known to a layperson even then. *See Accolade Sys. LLC v. Citrix Sys.*, 634 F. Supp. 2d 738, 753 (E.D. Tex. 2009). Web pages are common. Construing web page is unnecessary and

also may confuse the jury. Also, the specification’s description of “web page” is consistent with its common understanding—“A browser draws a web page associated with the web site by interpreting the HTML and JavaScript Code.” ’168 at 1:22-23. Ex. 2 ¶¶ 70-73.

Shopify’s construction of web page to be a “resource on the Internet” and “identified by a single uniform resource locator” is overly narrow and inconsistent with the specification. The specification describes web pages that are being built and not yet on the Internet.’168 at 5:44-54. A web page does not cease to be a web page if it is not on the Internet (e.g., on an intranet). Ex. 2 ¶ 72. Lastly, it is well known that a web page may be identified by multiple uniform resource locators. Ex. 2 ¶ 73. Thus, the extraneous limitation of “identified by a single uniform resource locator” is not supported by the specification and contradicted by the extrinsic evidence. *Id.*

2. Defendants’ Answering Brief

Defendants revised their proposed construction of “web page” to align with Mr. Weadock’s definition.²⁶ *See* Weadock Decl. ¶ 21; *see* Schmandt Decl. ¶ 165. While XMO has refused to agree to Defendants’ proposed construction, there does not appear to be any pending dispute. Because Defendants’ proposed construction helps explain what a “web page” is in the context of the claimed invention, the Court should adopt Defendants’ proposed construction.

3. Express Mobile’s Reply Brief

Defendants provide no rationale for construing this “very common” term, which needs no construction. Ex. 2 ¶¶ 70-73. Defendants’ revised construction of “a document viewable with a web browser” is unsupported and remains disputed. Mr. Weadock provided no such definition, and Express Mobile maintains that there is no basis for limiting this term to being viewable by a

²⁶ Defendants’ revised construction of “web page” is “a document viewable with a web browser.”

web browser. Web pages are viewable by any software that supports HTML or that can render information downloaded from the Internet. Ex. 2 ¶¶ 70-73; Ex. 4 ¶ 56.

4. Defendants' Sur-reply Brief

Defendants' proposed construction reflects the usage of this term by a POSA. XMO's suggestion that a "web page" is any document downloaded from the internet leads to absurd results, *e.g.*, every email, audio file, or video sent over the internet would satisfy XMO's definition of a "web page." Schmandt Suppl. Decl. ¶ 64.

O. "a web browser with access to a runtime engine is configured . . ."

Express Mobile Construction	Defendants' Construction
No construction necessary	a web browser is configured to use the runtime engine to display the website by reading objects and style data from the database

1. Express Mobile's Opening Brief

This term requires no construction. The parties do not dispute that "a web browser" should have its plain and ordinary meaning and "a runtime engine" is already being construed. The phrase "to generate the web-site from the objects and style data extracted from the provided database" requires no further construction and simply describes the purpose of the "runtime engine." Ex. 2 ¶¶ 74-78. Shopify improperly tries to limit the term to "is configured to use" and "reading objects and style data from the database." Such extraneous limitations are improper, however, because the specification discloses a broader and ordinary meaning of the phrases "with access to" and "from objects and style data extracted from the provided database." '397 at 43:8-17, 37-41.

2. Defendants' Answering Brief

Defendants' proposed construction reflects an attempt to clarify and explain what is meant by this garbled phrase. XMO suggests that Defendants' claim construction is too narrow, because the web browser is not required to *use* the runtime engine. *Supra* at 54-55. But XMO's argument

makes no sense and would render the claim term a nullity, because there is no other purpose for the runtime engine. Schmandt Decl. ¶ 168. Additionally, XMO suggests that the runtime engine need not read information from the database. But that argument is also incorrect, for the reasons discussed above for the term “runtime engine.” *Supra* at 49-50.

3. Express Mobile’s Reply Brief

Defendants’ “clarification” improperly narrows the term to require the web browser to use a runtime engine and to “display[ing] the website by reading objects and style data from the database.” The “web browser with access to a runtime engine” may obtain the needed components to generate the web site using various mechanisms, including mechanisms that are not covered by Defendants’ construction. Ex. 2 ¶¶ 74-78. For example, the specification discloses an embodiment where object data are not directly read by the runtime engine from the database but instead “extracted” and made available to the run time engine. *Id.* ¶ 76; Ex. 4 ¶ 57. This term needs no construction, and Defendants’ rewrite should be rejected.

4. Defendants’ Sur-reply Brief

XMO’s position that the web browser need not use the runtime engine would effectively read out this limitation, which the applicant relied on to distinguish the prior art. Schmandt Decl. ¶¶ 152-163, 168-171.

P. “a multidimensional array comprising the objects that comprise . . .”

Express Mobile Construction	Defendants’ Construction
No construction necessary	a multidimensional array that contains all the objects that make up the web site, and for each object the array includes data defining the object style, an object number, and an indication of the web page that the object is part of

1. Express Mobile's Opening Brief

The term “multidimensional array” already has an agreed construction. The rest of the phrase is in plain language and requires no construction. Shopify's construction imports the additional limitation of “that contains all the objects.” The plain meaning of the claim language “the objects that comprise the web site” does not mean “all the objects that make up the web site.” Ex. 2 ¶¶ 80-81. To comprise is used in this claim according to its plain and ordinary meaning of “to be the parts or members of something; to make up something” as in “Italian students comprise 60 percent of the class.” Ex. 1E. This term requires no construction and Shopify's attempt to contradict the plain meaning of the claim should be rejected.

2. Defendants' Answering Brief

The parties' dispute centers around the phrase “the objects that comprise the website,” and whether this phrase refers to “all the objects that make up the website.” Defendants' proposed construction correctly recognizes that it does. This claim element does not refer to “*at least one of*” the objects as XMO proposes, which is persuasive in view of other claims that expressly use such phrasing. *See, e.g.*, '168 patent at claim 1 (claiming “at least one button object”); Schmandt Decl. ¶ 173. This construction is consistent with the specification, which teaches that all of the objects that make up the website can be stored in the database. *Id.* ¶ 174.

In support of its position that this phrase refers to something less than all of the objects that make up the website, XMO refers to a dictionary definition for “comprise” and offers the example “Italian students comprise 60 percent of the class.” But the applicable definition of “comprise” is “to be made up of,” (which Mr. Weadock does not reference) and XMO's example is phrased differently than the claim. The claim language more closely parallels the phrase “the Italian students that comprise the class,” which is a reference to *all* the Italian students in the class, consistent with Defendants' proposed construction.

3. Express Mobile's Reply Brief

Defendants fail to show why this term needs construction, as “multidimensional array” has an agreed construction and “comprising the objects that comprise the web site” needs no further construction. The claims of the '168 patent include that user inputs associate a style with certain objects. '168, claim 1 64:54-55. This claim element relates to storing certain information for those objects (*e.g.*, the object style). “The objects” therefore refer to the objects the user associated a style with as claimed, not “all the objects that make up the web site.” This is consistent with the specification, which teaches that multidimensional array is only needed for storing multimedia objects and not all objects. '168 at 22:4-9, 41:35-38; Ex. 4 ¶ 58. Defendants fail to show why all objects of a website regardless of their relationship to the claim must be stored in the database.

4. Defendants' Sur-reply Brief

The straightforward reading of the phrase “the objects that comprise the website” is as referring to all the objects that make up the website; otherwise “at least one,” “one or more,” or some other language indicating a subset of objects would have been used. Schmandt Decl. ¶ 174.

Q. “produce a database with a multidimensional array”

Express Mobile Construction	Defendants' Construction
No construction necessary	create a database with a multidimensional array

1. Express Mobile's Opening Brief

Both “multi-dimensional array” and “database” have agreed constructions. The word “produce” requires no construction. Ex. 2 ¶¶ 82-84. Shopify attempts to narrow the scope of the claim by substituting “create” for “produce.” But basic rules of claim construction dictate that “the words of a claim are generally given their ordinary and customary meaning.” *Phillips*, 415 F.3d at 1312. Also, the specification confirms that to “produce” a database is broader than to

create a database by describing an embodiment of placing data into an existing database. '168 at 2:43-45.

2. Defendants' Answering Brief

The parties dispute whether “produce” means create (Defendants’ proposal) or whether it can refer to any way of making a database available (XMO’s proposal). The specification supports Defendant’s proposal when it refers to creation of a database during the runtime process. *See e.g.*, ‘168 patent at 5:52-54, 8:12-13, Fig. 2, Fig 4b; Schmandt Decl. ¶ 179. XMO has not identified any portion of the specification that supports its view that “produce” more broadly means “make available” and such a construction clashes with plain language of claim 1 of the ‘168 patent. The claim requires a build engine to “produce” a database and separately “provide” the database. If produce meant “make available,” there would be no need to separately specify that the build engine must “provide” the database too. Schmandt Decl. ¶ 177.

3. Express Mobile’s Reply Brief

Again, Defendants provide no basis for why this term requires construction or why “produce” should be replaced with “create.” Their citations to the specification are far from a “clear and unmistakable” redefinition of the term that is required to justify a departure from the plain and ordinary meaning. *See, e.g., Cordis Corp.*, 561 F.3d at 1329. Defendants’ references to the claim language similarly fail. Express Mobile is not seeking to redefine “produce” as “make available,” but to explain that the plain meaning of “produce” is not limited to creation. Ex. 2 ¶¶ 82-84. Moreover, Defendants’ argument that the “produce” and “provide” elements would be redundant without Defendants’ narrowing is unconvincing. The claims simply require that the build engine “produce” a database and separately “provide” that database “to a server.” Ex. 4 ¶ 59. Defendants ignore that the “provide” element specifies a database location, a function not covered by the “produce” element.

4. Defendants' Sur-reply Brief

"Produce" should not be construed to mean "provide" as XMO proposes, because the claim separately specifies producing and providing the database. XMO's suggestion in reply that the "'provide' element specifies a database location" is not reflected in the claim language and should be rejected.

IV. CLAIM CONSTRUCTIONS OF THE '755, '287, AND '044 PATENTS

A. "web component"

Express Mobile Construction	Defendants' Construction
one or more functionalities associated with one or more web page elements to be displayed on a device	software object, which has a clearly defined interface, conforms to a prescribed behavior common to all components within an architecture, is meant to interact with other components, and encapsulates certain functionality or a set of functionalities.

1. Express Mobile's Opening Brief

Express Mobile's construction of this term, "one or more functionalities associated with one or more web page elements to be displayed on a device," is consistent with the claims and specification. Ex. 2 ¶ 88; '755 patent Claims 1, 12 (37:9-10, 38:16-17), 8:22-26, 22:15-17, 22:40-43, 25:6-15; *see also id.* at 2:33-34, 9:16-20, Figs. 3E & 3F.

Shopify's construction is both unduly narrow and confusing to a jury. Ex. 2 ¶ 89. It contains numerous requirements that are either not referenced in the specification or are confined to preferred embodiments. Shopify's construction uses language such as "encapsulates" and "architecture" that is hardly discussed in the specification, and never in reference to "web components." Shopify's construction also introduces ambiguity—what is a "clearly defined interface"? Shopify's construction also improperly adds an "intent" aspect to the meaning of "web component" when it says that the software "is meant to interact with other components."

2. Defendants' Answering Brief

Defendants' proposed construction is consistent with the specification, and comes directly from the W3C²⁷ web services glossary. Schmandt Decl. ¶¶ 185-86, 188-190. The specification discusses web components in the context of web services and describes them as software objects that provide certain functionalities of a web service. *See* '755 patent at 2:33-34, 8:18-26, 8:36-47, 8:58-63, 22:15-17, 22:40-43, 25:6-15, Figs. 3E, 3F; Schmandt Decl. ¶ 185 (discussing these citations). During prosecution, XMO relied on the W3C glossary definitions to explain the background of the purported invention. *See* JCCC Ex. 16 at 5-6; JCCC Ex. 17 at 1011; Schmandt Decl. ¶¶ 181, 184; Defs' Ex. 3 (Weadock Tr.) at 46:12-47:5. Exhibit 2H to XMO's opening brief is the W3C glossary and includes the definition of "component" on which Defendants rely and XMO's expert agrees that this is a "valid definition of component." Defs' Ex. 3 (Weadock Tr.) at 260:10-261:2; Weadock Decl. Ex. 2H at 5. XMO's proposed construction, on the other hand, is untethered to the claimed invention, overly broad, and unhelpful in explaining what a web component actually is. *See* Schmandt Decl. ¶ 187.

3. Express Mobile's Reply Brief

Express Mobile's construction of "web component" is most consistent with the ordinary meaning and specification of the '755 patent family. Defendants do not dispute that "web components" pertain to web page functionalities and that these functionalities can be associated with web services or UI objects, as confirmed by the specification and claims of the '755 patent. *See* '755 at 8:22-26, 22:15-17, 22:40-43, 25:6-15, 37:9-10 (claim 1), 38:16-17 (claim 12); *see also* 2:33-34, 9:16-20. Indeed, Defendants admit—consistent with Express Mobile's construction—

²⁷ W3C is the World Wide Web Consortium, an international organization that "develops open standards to ensure the long-term growth of the Web." *See* www.w3c.org; Schmandt Decl. ¶ 35. XMO relies on this glossary in support of its arguments for other claim terms. *Infra* at 62 (citing Weadock Decl. ¶ 90).

that “the specification discusses web components in the context of web services and describes them as software objects *that provide certain functionalities*.” Defendants’ proposed construction, by contrast, is from an extrinsic source (the W3C) and improperly adds substantial detail that is not discussed, much less required, in the intrinsic record, including a “clearly defined interface.” The proposed definition is one of three definitions of the word “component” recited in a W3C glossary—not the full term “web component,” and it should be rejected for this reason alone. *Vanderland BV v. ITC*, 366 F.3d 1311, 1321 (Fed. Cir. 2004) (rejecting use of dictionary in claim construction where it “concern[ed] only one word in a twoword claim term and is vague, abstract, and fails to connote a particular structure”); Ex. 4H, Schmandt Dep. at 313:6-314:5 (acknowledging that he drew from the first of three definitions of “component,” not “web component”); Ex. 2H (W3C Glossary). The proposed definition was by far the most limiting of the three, and Mr. Weadock did not agree that it was a valid definition of “web component” as claimed in the ’755 patent. He was never directly asked whether the definition of “component” bore on the meaning of “web component” within the ’755 patent. To the extent the glossary entry is relevant, Mr. Weadock’s opinion is that the second definition in the same W3C glossary entry is more appropriate, and is consistent with Express Mobile’s proposal, which is simpler and uses more understandable language. Ex. 4 ¶¶ 60-63.

4. Defendants’ Sur-reply Brief

Defendants’ construction is derived from the W3C *Web* Services Glossary, a technical glossary specific to the web, which the applicant referenced during prosecution. *See* Schmandt Decl. ¶¶ 35, 44-50, 181; JCCC Ex. 16 at 5; JCCC Ex. 17 at 10.²⁸ XMO’s construction is

²⁸ *Vanderlande BV v. ITC*, 366 F.3d 1311, 1321 (Fed. Cir. 2004) cited by XMO is therefore inapposite because it involved a non-technical dictionary with no relationship to patent. *Id.*

inconsistent with the definition of “component” provided in this glossary.²⁹ Schmandt Suppl. Decl. ¶ 72.

B. “web service”

Express Mobile Construction	Defendants’ Construction
No construction necessary <i>Alternative:</i> a software system that supports communication between devices over a network	method of communication between two electronic devices over the World Wide Web that implements logic which receives inputs and returns outputs

1. Express Mobile’s Opening Brief

A “web service” is a well understood term in the art and does not need to be construed. Definitions of “web service” abound in computer dictionaries and technical literature. Ex. 2 ¶¶ 90-92. For example, a person of ordinary skill in the art would understand a “web service” to refer to “an application or data source that is accessible via a standard web protocol” or other similar definitions. *Id.* This meaning is consistent with the specification of the ’755 patent, which simply describes a “web service” as “a plurality of services obtainable over the Internet.” ’755 at 8:18-19. The specification provides examples of web services including searching from Google or Yahoo, map applications, social networking through Facebook, video chatting services, and more. ’755 at 9:27-43, 10:4-11, 10:44-49, 12:29-38, 25:1-4, 26:51-59.

Shopify’s construction improperly limits web services to communications “between two electronic devices over the World Wide Web” when web services such as video chat are often provided over the general Internet or over intranets. Ex. 2 ¶ 92. Additionally, communications over web services can involve more than two devices—for example, a three-way video chat. *Id.*

²⁹ XMO argues that Defendants are adding unnecessary detail to the term “web component,” but XMO previously described the idea using similar details. *See* Ex. 36 at XMO_SHOP00005099 (“Web Components provides [sic] the mobile application with a well-defined, extensible interface.”); *see also* Ex. 35 (Chrobak Tr.) at 68:17–69:5; 78:25–81:4; 96:19-97:7; 97:22–24 & Chrobak Ex. 18.

2. Defendants' Answering Brief

Defendants' proposed construction is based directly on the applicant's own definition of the term, provided during prosecution: "a 'web service' [], it is well known, is a method of communication between two electronic devices over the World Wide Web." JCCC Ex. 17 at 10; *see also* JCCC Ex. 16 at 5; Weadock Decl. ¶ 90 (noting definition in file history). The applicant also stated that a web service "processes inputs and then generates outputs based on the logic of the web service computer program." JCCC Ex. 17 at 10-11; JCCC Ex. 16 at 5; Defs' Ex. 3 (Weadock Tr.) at 244:11-245:11 (agreeing with this aspect of Defendants' construction). XMO's critique of Defendants' proposed construction fails to address this unambiguous prosecution history and construction of the term is warranted, to help explain what the claimed "web services" are to persons on the jury who may not be familiar with the term. *See* Schmandt Decl. ¶ 194.

3. Express Mobile's Reply Brief

"Web service" does not need construction because it is understood by reference to its plain and ordinary meaning. Ex. 2 ¶¶ 90-92. Defendants fail to cite the specification, but assert that their construction was a "definition" in the prosecution history. However, the generic statements in the prosecution history do not unequivocally define "web service" as being limited to communications between two devices. Indeed, the very same pages of the prosecution history Defendants cite reference the W3C definition of "web service," which more generically refers to "web services" as "software system[s] designed to support interoperable machine-to-machine interaction over a network." The prosecution history therefore contains multiple statements and descriptions of web service, and was not clearly defining or disavowing claim scope. *Avid Technology, Inc. v. Harmonic, Inc.*, 812 F.3d 1040, 1045 ("[N]o disclaimer . . . where the alleged disavowal is ambiguous or amenable to multiple reasonable interpretations.").

If a construction is required, it should be “a software system that supports communication between devices over a network.” Any construction should not be limited to “two electronic devices” or only over the “World Wide Web” as multiple devices can communicate together, and communication can take place over intranets also. Ex. 4 ¶ 64.

4. Defendants’ Sur-reply Brief

The applicant’s statements were definitional and should therefore govern. *See* JCCC Ex. 16 at 5; JCCC Ex. 17 at 10.

C. “symbolic name(s)”

Express Mobile Construction	Defendants’ Construction
No construction necessary	parameters relating to inputs and/or outputs associated with web services that are not pointers to information

1. Express Mobile’s Opening Brief

The plain language of the claims provides a ready definition for “symbolic names”—“the symbolic names are character strings that do not contain either a persistent address or pointer to an output value accessible to the web service.” *See, e.g.,* ’755 Patent, claim 1. A person of ordinary skill in the art would understand that this is the plain meaning of the word “symbolic name(s).” Ex. 2 ¶ 93. When the plain language of a claim defines a claim term, courts, including this one, have held that no construction is necessary. *See, e.g., Acceleration Bay LLC v. Activision Blizzard, Inc.*, No. CV 16-453-RGA, 2017 WL 3738383, at *8 (D. Del. Aug. 29, 2017) (finding that no construction is necessary because “[t]he plain language of the claims provides a ready definition for the concept of ‘m’ at least when used in isolation.”); *see also Cordance Corp. v. Amazon.com, Inc.*, 636 F. Supp. 2d 310, 322 (D. Del. 2008), *aff’d*, 658 F.3d 1330 (Fed. Cir. 2011); *Illinois Computer Research, LLC v. Harpo Prods., Inc.*, 704 F. Supp. 2d 758, 768 (N.D. Ill. 2010).

Shopify improperly attempts to limit the term to “parameters relating to inputs and/or outputs associated with web services.” First, the claims use “symbolic name” broadly as a name and not specifically as a parameter, i.e., a value associated with variables or functions. Ex. 2 ¶¶ 94-95. The claim language plainly differentiates a symbolic name from the values associated with the symbolic name: “the web service utilizes the input symbolic name and the user provided one or more input values for generating one or more output values having an associated output symbolic name....” ’755 at 37:39-42. Second, the claims use symbolic name to reference more than just inputs and outputs of a web service but also to reference a UI object: “produce an Application including the selected symbolic name of the defined UI object.” ’755 at 37:26-27.

2. Defendants’ Answering Brief

Defendants’ proposed construction of “symbolic name(s)” is derived from the meaning given to the term by applicant during prosecution:³⁰ “The symbolic names [] of inputs and/or outputs associated with web services are merely parameters and are not pointers to information.” JCCC Ex. 16 at 10. Thus, the prosecution history confirms that symbolic names are parameters³¹ and they relate to inputs and/or outputs associated with web services.³² The priority documents also describe “parameters” in the same way the applicant described symbolic names in the file history. *See* Schmandt Decl. ¶ 200 (discussing JCCC Ex. 12 at XMO001741-65). Defendants’ proposed construction is derived from the intrinsic record and is consistent with how one of ordinary skill in the art would interpret the term. *See* Schmandt Decl. ¶¶ 196-201.

³⁰ The specification includes only one reference to the term “symbolic name” outside of the claims, and thus does not provide guidance on the meaning of this term. *See* ’755 patent at 9:11-16.

³¹ *See* JCCC Ex. 17 at 16; JCCC Ex. 16 at 6, 9, 10 (all referring to symbolic names as parameters); *compare* JCCC Ex. 17 at 11 (explaining that “a registry is provided of parameters”) *with* ’755 patent at claim 1 (claiming a registry of symbolic names).

³² *See* JCCC Ex. 15 at 9; JCCC Ex. 16 at 9; JCCC Ex. 17 at 11-12 (all confirming that symbolic names relate to inputs and/or outputs associated with web services).

XMO's argument that the term "symbolic name" requires no construction should be rejected, because it is not a commonly understood term. XMO's assertion that symbolic names are not parameters should also be rejected because it is inconsistent with the intrinsic evidence discussed above. *See* Schmandt Decl. ¶¶ 196-201. Additionally, XMO's assertion that Defendants' construction is too narrow because a symbolic name can reference a UI object, *supra* at 65, ignores the fact the UI objects are themselves associated with inputs and outputs of a web service. Schmandt Decl. ¶ 203.

3. Express Mobile's Reply Brief

No construction is necessary for the term "symbolic name" because the term is already defined by the claim language. *All* of the independent claims of the patents in the '755 patent family state that "symbolic names are character strings that do not contain either a persistent address or pointer to an output value accessible to the web service." Defendants fail to address why the claim language itself is insufficient to give meaning to this term.

Defendants rely on statements in the prosecution history that "the symbolic names [] of inputs and/or outputs associated with web services are merely parameters, and are not pointers to information." This statement related to the *Sidman* prior art reference cited in prosecution, which the Applicant explained "teaches a directory of *persistent addresses (pointers)* for information on the Internet." JCCC Ex. 16 at 10; Ex. 4 ¶¶ 65-66. This language thus distinguished only "symbolic names" that were "persistent addresses" or "pointers." Ex. 4 ¶ 66. The claim language discussed above already includes this limitation. *Id.* Defendants' attempt to further redefine this term based on the prosecution history is unnecessary and legally improper. *SAS Institute, Inc. v. ComplementSoft, LLC*, 825 F.3d 1341, 1348 (Fed. Cir. 2016) ("no unmistakable evidence that the patentee disclaimed more" than what the reference suggested.)

4. Defendants' Sur-reply Brief

The claims refer to what a symbolic name is not, not what it is. XMO incorrectly argues that the discussion of symbolic names as parameters only occurred in reference to prior art, *supra* at 66 (failing to cite JCCC Ex. 16 at 6, JCCC Ex. 17 at 11–12), but regardless, this prosecution history supports Defendants' proposed construction.

D. "Application / application"

Express Mobile Construction	Defendants' Construction
Device-independent software code containing instructions for a device	device-independent code that is generated by the authoring tool, is partitioned from the Player, and is interpreted or executed by the Player

1. Express Mobile's Opening Brief

The appropriate construction of "application" is "device-independent software code containing instructions for a device." The parties agree that "application" is code that is "device-independent." This is consistent with the specification, which repeatedly refers to the "application" as being "device-independent." '755 at Abstract, 2:1-2; 5:14-15, 6:4-6.

Express Mobile's construction includes, consistent with the specification, that device-independent application code is "software code containing instructions for a device." *See, e.g.*, 5:34-41, 56-59, 11:44-51, 13:46-49. Ex. 2 ¶¶ 100-101.

Shopify's construction impermissibly imports limitations from preferred embodiments, including requiring the device-independent code be (1) "generated by the authoring tool,"; (2) "partitioned from the Player," and (3) "interpreted or executed by the Player." Ex. 2 ¶¶ 102-104. *First*, the claim language does not limit application code to be generated by the authoring tool. The term "authoring tool," for example, is not recited in every claim of the '755 patent. '755 at 38:14-56, 39:24-40:21. Moreover, when the specification refers to code that is "generated by the

authoring tool,” the specification states that is limited to “certain embodiments”—not all of them. ’755 at 1:34-42. *Second*, the “Application” is not necessarily “partitioned from the Player”—it can also be an integrated with the “Player.” The specification notes that “[i]n one embodiment,” the Application can be extended “on the Player so that *it is efficiently integrated into a comprehensive client/server Application.*” ’755 at 7:30-3, 17:66-18:3. *Third*, an application is not required to be interpreted or executed by the Player but may be executed directly by the device. See e.g., ’755 at 5:32-41, 12:6-10, 13:42-49, 34:51-64.

2. Defendants’ Answering Brief

Defendants’ proposed construction is based on the applicant’s clear statements in the specification and file history regarding the meaning of the claimed “Application.” The intrinsic record shows that the claimed Application must be: 1) device-independent code; 2) generated by the authoring tool; 3) partitioned from the Player; and 4) interpreted or executed by the Player.

First, the parties agree that the Application is a “device-independent” code.

Second, during prosecution, the applicant repeatedly stated that the Application was generated by the authoring tool: “[t]he Authoring Platform generates and provides both an Application and a Player.” JCCC Ex. 19 at 8-9; *see also* JCCC Ex. 15 at 8, 12; JCCC Ex. 16 at 4; JCCC Ex. 17 at 10; JCCC Ex. 18 at 9; *id.* at 11 (arguing that independent claims 1 and 12 require “***an authoring tool*** that produces a (device-dependent) Player and a (device-independent) Application” even though claim 12 does not specify what produces the Application and Player).

Third, the applicant described the Application as being “partitioned” from the Player and touted this as an advantage that distinguished the claimed invention over prior art, in which the Application and Player were present in a single code. *See* JCCC Ex. 18 at 12, 13 (“the claimed invention, in contrast, operates by partitioning the code required for functionality into device-independent code and device-dependent code.”); JCCC Ex. 19 at 8 (“By partitioning code for

accessing web services into an Application and a Player has an advantage for maintaining websites,” [*sic*]); JCCC Ex. 15 at 11 (arguing that there “is no teaching or suggestion in [the prior art] McCain of an authoring tool that provides two separate codes: a device-dependent code (such as the claimed Player) and device-independent code (such as the claimed Application).”); *see also* Defs’ Ex. 3 (Weadock Tr.) at 175:24-176:16 (agreeing that the prosecution history described the Application as separate from the Player).

Fourth, the specification discloses that the Player “interprets or executes the Application[.]” ‘755 patent at 6:6-7; *see also id.* at 6:9-11. The applicant repeatedly reaffirmed this functional relationship during prosecution. *See* JCCC Ex. 15 at 9 (“the Player interprets the Application”); *see also id.* at 11; JCCC Ex. 18 at 9; JCCC Ex. 19 at 8 (all confirming that the Player interprets the Application).

The portions of the specification cited by XMO do not undermine Defendants’ proposed construction. *See* Schmandt Decl. ¶¶ 212-17. Moreover, XMO and its expert fail to discuss any of the repeated, detailed definitions of “Application” in the prosecution history. Defs’ Ex. 3 (Weadock Tr.) at 178:24-179:4; *see Nystrom v. Trex Co., Inc.*, 424 F.3d 1136, 1144-45 (Fed. Cir. 2005) (patent owner “is not entitled to a claim construction divorced from the context of the written description and prosecution history”); *Springs Window Fashions LP v. Novo Indus., L.P.*, 323 F.3d 989, 995 (Fed. Cir. 2003) (“The public notice function of a patent and its prosecution history requires that a patentee be held to what he declares during the prosecution of his patent.”).

3. Express Mobile’s Reply Brief

Express Mobile’s construction of “application” is most consistent with the specification and claims of the *entire* ‘755 patent family, and provides a straightforward meaning. The parties agree that the claimed “application” contains device-independent code and “software code containing instructions for a device.” Ex. 4 ¶ 67. The cited disclosures refer to “instructions of

the Application” and “an Application having the programming instructions . . . for a device.” *Id.* at 5:56-59, 13:45-46. Defendants do not dispute this. Defendants improperly attempt to inject three additional requirements. The claims and specification belie Defendants’ assertion that the Application must necessarily be “generated by the authoring tool.” Claims 12 and 23 of the ’755 patent do not recite an “authoring tool” that can generate the application, while claim 26 (which depends from claim 23) recites that a “device-independent,” “second code” (*i.e.*, the Application),³³ can be “generated using an authoring tool.” Ex. 4K; Weadock Dep. at 190:13-191:17; Ex. 4 ¶ 68. Thus, “generated by the authoring tool” is *possible*, but not required and in fact would improperly read entire new elements (*e.g.*, authoring tool) into certain claims. The specification also contradicts Defendants’ construction and contemplates that the Application can simply be provided *over a network*, which is entirely agnostic to any role the authoring tool might play. *Compare* 1:34-42 (“In certain embodiments, . . . **[t]he authoring tool is configured to . . . produce code**”), *with* 1:43-50 (“In certain other embodiments, a method is provided for providing information to platforms on a network. The method includes . . . **providing a second code over the network**, where said second code is platform-independent.”). The prosecution history excerpts the Defendants rely on only reinforce that “**[o]ne embodiment** is an authoring tool.” Ex. 4 ¶ 68; JCCC Ex. 19 at 8, Ex. 15. at 8, Ex. 16 at 4; Ex. 17 at 10; Ex. 18 at 9. And none of the prosecution history excerpts address claims 23 and 26 of the ’755 patent. Defendants’ attempt to inject this limitation is improper for the reasons given in *Toshiba Corp. v. Imation Corp.*, 681 F.3d 1358, 1368-69 (Fed. Cir. 2012), where the Court refused to limit a claim “to an embodiment disclosed

³³ Claim 28 depends from claim 23 and claims the embodiment where the “second code is an Application,” confirming that the “second code” can also refer to the Application in claim 23.

in the specification or prosecution history,” particularly where there are claims that are broader than that embodiment.

The Application also need not necessarily be “interpreted or executed by the Player.” Defendants assert that this limitation should be read into the claims based on a discussion of a single embodiment described in column 6 of the ’755 patent. 6:4-8. But the patent makes clear elsewhere that the “*device*” itself, “having the appropriate device platform player,” can “*receive[] and execute[] the device-independent Application.*” ’755 at 13:46-49. The claim language of independent claim 12 of the ’755 patent explicitly confirms that “the Application and Player are provided to the device *and executed on the device.*” 38:41-42. Just as the Player does not necessarily need to execute the Application in claim 12, it also need not interpret it in claim 12. Claim 21, which depends from claim 12, expressly claims the embodiment where the “Player interprets . . . values of the web component defined in the Application.” 39:18-21. This confirms that claim 12 does not require that the Player interpret (let alone execute) the Application. This is all consistent with the disclosures in the patent that the “Application can be *intercepted*, via a Player” or that the Player can “*adapt[] the Application to the resources and limitations of any particular device*”—and not necessarily interpret or execute it. 8:27-35, 34:51-64. Ex. 4 ¶ 69. To the extent that Defendants point to pieces of prosecution history that suggest that the Application is “interpreted” by the Player, the prosecution history only reinforces that “*one example* of the operation of the Application and Player” involves the Application being interpreted by the Player. JCCC Ex. 19 at 8; Ex. 4 ¶ 69. The principles in *Toshiba* thus apply again. 681 F.3d at 1368-69. Finally, the additional requirement of the Application being “partitioned from the Player” is likewise inappropriate. The specification does not disclose or require that the Player be “partitioned” from the Application. When the applicants argued during prosecution that

“partitioning code for accessing web services into an Application and a Player was advantageous,” or that there “is no teaching or suggestion in [the prior art] McCain of an authoring tool that provides two separate codes” (*i.e.*, the Application and Player), they merely acknowledged that the Application is a device-independent code that is distinct from the Player.³⁴ Indeed, the applicants distinguished the invention from McCain because “McCain teaches only providing a self contained, device-dependent code to a device that can communicate with a web service”—not a device-independent code found in an Application or in an Application and a Player as recited in the claims. JCCC Ex. 19 at 17; Ex. 4 ¶ 70. The prosecution history is entirely consistent with Express Mobile’s proposed construction of Application and its relationship to the Player, which are already recited separately in the claims. Ex. 4 ¶ 70. There is therefore no “clear and unmistakable” disclaimer that should limit the construction of Application to Defendants’ unduly narrow proposal. *3M Innovative Properties Co. v. Tredegar Corp.*, 725 F.3d 1315, 1326 (Fed. Cir. 2013) (no disclaimer where there is a “reasonable, contrary reading of the prosecution history”). Defendants’ reliance on *Springs Window* and *Nystrom* is also misplaced because in those cases there were “clear and unmistakable” disclaimers.

4. Defendants’ Sur-reply Brief

XMO tries to distance itself from applicant’s discussion of the Application and Player in the specification and file history by suggesting that the statements relied on by Defendants were limited to certain embodiments. *Supra* at 70-72. But the totality of the intrinsic evidence confirms the Application / application must be produced by the authoring tool, interpreted or executed by the Player, and partitioned from the Player. For example, the applicant repeatedly explained that

³⁴ Defendants assert that separate code is the same as partitioned: “[t]he asserted claims recite the Player and Application separately, which would suggest to one of ordinary skill in the art that they are partitioned.” Schmandt Decl. ¶ 209. Defendants’ partitioned language is therefore at best redundant or if not redundant an improper extraneous limitation.

the application is produced by the authoring tool, without reference to a specific embodiment. *See* ’755 patent at 3:6–9; 12:4–6; JCCC Ex. 19 at 8–9 (“The Authoring Platform generates and provides both an Application and a Player[.]”).³⁵ In fact, the applicant made the same arguments for claim 12, which does not explicitly reference an “authoring” tool at all. *See* JCCC Ex. 15 at 12; JCCC Ex. 19 at 8-9; JCCC Ex. 18 at 9, 11.³⁶

The specification also states that the Player interprets or executes the Application, ’755 at 6:6–7, which was repeatedly confirmed during prosecution. The discussion was definitional, not exemplary: the applicant stated “the Player interprets the Application” in “the present application” and with respect to claims 1 and 12 of the ’755 patent. JCCC Ex. 15 at 8–9.³⁷

Finally, XMO incorrectly claims the applicant never distinguished prior art on the basis of the claimed Application being partitioned from the Player. The applicant’s position during prosecution is clear: the cited prior art teaches *combining all code* into one set, whereas the invention partitioned the code into two sets. JCCC Ex. 15 at 9–10, 11. XMO’s proposed construction fails to account for this history and would encompass the very prior art applicant successfully overcame. *Chimie v. PPG Indus., Inc.*, 402 F.3d 1371, 1384-85 (Fed. Cir. 2005) (claims should not be construed “one way in order to obtain their allowance and in a different way against accused infringers.”)

E. “Player / player”

Express Mobile Construction	Defendants’ Construction
Software code that facilitates the execution of an application on a device	an executable file of device-specific instructions for the processor of the device

³⁵ That the code is later provided over the network does not define how the code is *produced* in the first instance. *See* Schmandt Suppl. Decl. ¶ 79; Ex. 21 (Schmandt Tr.) at 227:1–19.

³⁶ The applicant’s discussion of claim 23, which is not asserted, is irrelevant as it claims a “second code” more broadly, not specifically an Application. Schmandt Suppl. Decl. ¶ 78.

³⁷ XMO asserts that dependent claim 21 “expressly claims” interpretation of the Application by the Player, but XMO omits relevant language illustrating that the claim is significantly narrower.

Express Mobile Construction	Defendants' Construction
	that is generated by the authoring tool, is partitioned from the Application, and interprets or executes the Application

1. Express Mobile's Opening Brief

The appropriate construction of “player” is “software code that facilitates the execution of an application on a device.” Ex. 2 ¶¶ 105-108. The specification of the ’755 patent in the “Disclosure of the Invention” section explains that the invention “produc[es] code that, when executed on the platform, provides . . . selected component on the display of the platform,” and that one of the produced codes is a “Player.” ’755 at 1:55-67. The “Player” can be such that it has “*no device specific dependencies*” (i.e., device-independent), or it can be such that it “extends the operating system and/or virtual machine of the device” (i.e., device-dependent). *Id.* In either case, a Player is a type of code that can facilitate the execution of an application on a device.

Shopify again imports several improper limitations. *First*, Shopify suggests that the code or instructions generated by the Player must be “an executable file of device-specific instructions.” But importing a “device specific” limitation is improper. The specification explains that a Player can have “no device specific dependencies,” and the Player “*may*”—but not must—“include code that is device-specific.” ’755 at 1:55-67, 6:9-11. Also, it is improper to define the “Player” itself to be device-specific, when each claim in the patent family specifies whether it uses device-specific code when intended. *Compare* ’755 claims 1, 12, 27 and ’287 claim 1, *with* ’044 claims 1, 15.

Thus, “Players” within the ’755 patent family may be either device-dependent or device-independent as shown in the specification. *See, e.g.*, ’755 at 3:58-62, 5:8-24, 42-55, 56-6:3, 6:9-17, 7:13-20, 30-40, 8:7-17, 27-35, 9:4-10, 11:41-51, 17:66-18:3, 23:43-46, 33:12-15, 26-28, Figs. 2A, 2B. Although the Abstract of the ’755 patent states that “[d]evices are provided with Players specific to each device,” that language does not restrict Players to device-specific code in light of

the “device-independent” disclosures above. Ex. 2 ¶107. *See Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1121 (Fed. Cir. 2004) (the patent abstract “does not weigh heavily when considering” the meaning of a claim term).

Shopify’s additions that the Player is “partitioned,” “generated by the authoring tool,” or “interprets or executes” the Application are also improper. *See* Application section above.

2. Defendants’ Answering Brief

Defendants’ proposed construction of “Player” to be “device-specific instructions for the processor of the device” also comes directly from the intrinsic evidence. The specification states that instructions “in the form of a device- or device-platform specific instructions for [a] processor of the device” is “*referred to herein and without limitation* as a ‘Player[.]’” ‘755 patent at 5:8-24; *see also* ‘755 patent at Abstract, 3:58-62; 5:8-24; 5:42-55; 5:56-6:3; 6:9-17; 8:717; 11:41-51; 23:43-46; 33:12-15; 33:26-28; Schmandt Decl. ¶¶ 223-24. The device-specific nature of the Player was repeatedly confirmed by the applicant during prosecution: “The present patent application consistently use [*sic*] the words ‘Application’ (with a capital A) and ‘Player’ (with a capital P) to refer to code that is provided to devices for accessing web services, where . . . a Player is *device-dependent code*.” Ex. 19 at 9-10 n.1 (emphasis in original); *see also* JCCC Ex. 15 at 11, 12; Ex. 18 at 11, Ex. 19 at 12 (repeating that the Player is dependent or specific to a specific device).

Defendants’ construction further includes the limitation that the file is executable. The specification states that the device-dependent Player code is “instructions for the processor,” *i.e.*, executable code. *See* Schmandt Decl. ¶ 222; ‘755 patent at 5:9-12. The applicant repeatedly confirmed this aspect of Defendants’ proposed construction during prosecution as well. *See* JCCC Ex. 19 at 8 (“the device receives an *executable* code in the form or a Player.”); *see also* JCCC Ex. 18 at 9; JCCC Ex. 15 at 10 (both referring to the Player as executable code).

As described above with respect to “Application,” during prosecution, the applicant repeatedly noted that the Player was generated by the authoring tool and partitioned from the Application. *See supra* at 68-69. The specification also states that the Player “interprets or executes the application.” ‘755 patent at 6:6-11; *see also supra* at 68-69.

XMO focuses on one line of the specification,³⁸ which, if taken at face value, would seemingly be inconsistent with the applicant’s repeated, explicit statements elsewhere in the specification and during prosecution in support of its construction. *See* Schmandt Decl. ¶ 224 (each citation other than 1:55-67 by XMO supports Defendants’ construction or is irrelevant to dispute). But when viewed in the context of the ‘755 patent as a whole, the most likely reading of the phrase stating that the Player “has no device specific dependencies” is that the “no” in this phrase is typo and should not have been included, consistent with the fact that the rest of the intrinsic evidence indicates that the claimed Player *does* have specific dependencies and reflective of the other numerous typos in the specification. *See* Defs’ Ex. 3 (Weadock Tr.) at 139:24-140:23 (arguing that claim 12 must include a typo because the specification “says over and over” something different than what is in claim 12); *id.* at 135:8-140:6, 184:21-185:7 (recognizing other typos in specification); *see also, e.g.*, ‘755 patent at 29:29 (“This is equivalent generating [*sic*] a Player”); *id.* at 5:8 (“system 100 provides permits [*sic*]”); *id.* at 7:58-59 (“downloaded form [*sic*] content server”); *id.* at 6:9-10 (“that it [*sic*], each device is provided with a Player”).

3. Express Mobile’s Reply Brief

Express Mobile’s construction of Player is most consistent with the specification, which states that the invention “produc[es] code” that is “executed on the platform,” and that one of those

³⁸ Express Mobile also argues that the specification states the Player “may”—but not “must”—“include code that is device-specific.” This however, does not suggest that a Player is not device-specific in light of the file history and other statements made by the patentee.

codes is a “Player.” ’755 at 1:55-67. Other disclosures confirm that “[t]he Player . . . prepar[es] a page view for execution,” or that it can “adapt[] the Application to the resources and limitations of any particular device,” consistent with Express Mobile’s construction that the Player “facilitates the execution of an application on a device.” ’755 at 33:12, 34:51-53; Ex. 4 ¶¶ 71-72. Defendants’ efforts to import various unnecessary and improper limitations into the claim construction are unavailing. *First*, for the same reasons above with respect to Application, it is improper to require that the Player “is generated by the authoring tool,” is “partitioned from the Application,” and “interprets or executes the Application.” Ex. 4 ¶¶ 67-70.

Second, Defendants’ requirement that the Player must be an “executable file” (rather than software code) is unduly narrow. Defendants’ only citation to the specification for this argument is that the Player contains “instructions for the processor.” ’755 at 5:9-12. But the existence of instructions in the Player does not necessarily require that the Player to be an executable file, such as a .exe file used in Windows systems. And the patent does not limit Player code to be in a single file—it could include multiple files with *instructions* that, eventually, are executable. Ex. 4 ¶ 72.

Third, Defendants’ argument that the Player necessarily contains “device-specific instructions” is without merit. Defendants cite a reference in the specification to a Player with “device- or device-platform specific instructions” but the sentence refers to “one embodiment.” ’755 at 5:8-12. The specification also specifically describes the Player as being device-independent, as it is in an embodiment where the Player “is a thin client architecture that operates in a language that manages resources efficiently, is extensible, supports a robust application model, and has *no device specific dependencies*.” ’755 at 1:59-62. The patentees expound on this “thin client” architecture later in the specification. ’755 at 6:22-30. Such “thin client architectures” were known in the art to be synonymous with “device-independent architectures.” Ex. 4, ¶ 73.

This disclosure is consistent with the statement in the specification that the Player “may”—but not must—“include code that is device-specific.” ’755 at 6:9-10.

This evidence from the specification makes plain that the Player does not necessarily require “device-specific instructions.” As a result, Defendants attempt to mischaracterize the discussion of thin client version of the Player (discussed across several lines of the specification in multiple places), with “*no device specific dependencies*,” as a “one line” “typo.” However, a person of ordinary skill would not have understood this to have been a typo. Ex. 4 ¶ 74. Defendants’ construction would exclude these express disclosures and embodiments of the ’755.

Realizing that the specification contradicts their construction, Defendants turn to the unremarkable statement in a footnote of the prosecution history of the ’755 patent that “[t]he present patent application consistently” refers to a “‘Player’ (with a capital P),” where “a Player is device-dependent code.” JCCC Ex. 19 at 9-10 n.1 (emphasis omitted). That was a true statement, as *every reference* to Player in the then-pending independent claims of the ’755 patent expressly recited “a Player, where said Player is a device-dependent code.” JCCC Ex. 19 at 3-5 (reciting this language in independent claims 1, 12, and 23 of the ’755 patent). However, the later issued ’044 patent claims do not include the phrase “device-dependent code.” Thus, the claims themselves make clear when the player is device-dependent code. To read this limitation into the term player universally would therefore make it redundant in some claims and would improperly read a limitation into others. Ex. 4 ¶¶ 75-76. Finally, the prosecution history statement in the parent application is not a disclaimer for the reasons discussed above; it is also not applicable in the descendant ’044 patent because the claims were materially different and did not include the phrase device-dependent code. *Ventana Medical Systems, Inc. v. Biogenex Laboratories, Inc.*, 473 F.3d 1173 (Fed. Cir. 2006) (statement made during prosecution of ancestor application did “not

apply” to downstream patent where “different claim language” was used); *Broadridge Fin. Sols., Inc. v. Inveshare, Inc.*, 2012 WL 1245723, at *6 (D. Del. Apr. 11, 2012) (Andrews, J.) (declining to apply disclaimer to child claims where parent claim language was not “synonymous”).

4. Defendants’ Sur-reply Brief

For the reasons discussed above relating to “Application, the “Player” must be generated by the authoring tool, partitioned from the Application, and used to interpret or execute the Application. The Player is also an executable file (or files). The specification, which XMO and its expert ignore, discloses that the Player instructions are for the processor, which necessitates executable code. Schmandt Decl. ¶ 222; *see* Weadock Decl. ¶ 106 (not discussing this); Weadock Suppl. Decl. ¶ 72 (same). XMO also fails to account for any of the repeated statements during prosecution that the Player is executable code. *Supra* at 77-78.

XMO is also wrong that the Player does not contain device-specific instructions. The specification expressly states that “device- or device-platform specific instructions for the processor” of the device, are “referred to herein and ***without limitation*** as a Player,” ’755 patent at 5:10-13, not only in one embodiment. In addition, the patent’s reference to a “thin client architecture,” does not support XMO’s position. First, a thin client architecture is unrelated to whether the Player is device-specific. Schmandt Suppl. Decl. ¶¶ 90–93; *see also* Ex. 21 (Schmandt Tr.) at 281:3-282:9, 284:13-287:12. Second, the only specification citation given by XMO (6:22–30)³⁹ is consistent with Mr. Schmandt’s understanding of “thin clients.” Schmandt Suppl. Decl. ¶¶ 92–93. Third, “[a] statement made during prosecution of related patents may be properly considered in construing a term common to those patents.” *Teva Pharm. USA, Inc. v. Sandoz, Inc.*,

³⁹ To the extent “no device specific dependencies” is not a typo, it appears to modify “language,” not “Player.” *Compare id. with* Ex. 37 at XMO_SHOP00017922 (similar phrase discussing the thin client’s language, not the Player); *see also* Schmandt Suppl. Decl. ¶¶ 88-89, 100.

789 F.3d 1335, 1343 (Fed. Cir. 2015). XMO explicitly stated the “patent application,” not merely the claims of the ’755 patent “consistently use [sic] the word[] . . . ‘Player’ . . . to refer to code . . . , where . . . a Player is **device-dependent code**.” JCCC Ex. 19 at 9–10 n.2 (emphasis in original). This is consistent with each of the definitional statements made by the applicant untethered to particular claims. *See, e.g.*, JCCC Ex. 15 at 11; JCCC Ex. 18 at 9; JCCC Ex. 19 at 8. XMO’s construction of Player, however, in conjunction with XMO’s construction of Application, eliminates the Player/Application distinction almost entirely.

F. “device-dependent code”

Express Mobile Construction	Defendants’ Construction
code that is aware of device type or device-specific functions	executable code that differs depending on the device platform

1. Express Mobile’s Opening Brief

“Device-dependent code” is “code that is aware of device type or device-specific instructions.” Ex. 2 ¶ 109. The specification teaches that device-dependent code only needs to be “aware” of certain device type or device-specific instructions. ’755 at 34:4-11. The specification references “device-specific instructions” that allow hardware to “generat[e] a display on screen, instructions for accepting input from [an] input device, instructions for interacting with a user of [a] device, and/or instructions for otherwise operating the device, such as to place telephone call.” ’755 at 5:56-6:3. For these instructions to operate on different devices, the only common requirement is that they have an awareness of the device type or device functions for which instructions are being written. This is consistent with later disclosures of the specification, which make plain that a “Player” containing “device-dependent code,” such as a JAD file, “could contain the operator or device type or extended device-specific functions that the player would then

become aware of.” ’755 at 34:4-11, 34:51-64. Shopify again attempts to add the limitation “executable code” into this term, which is unsupported and improper.

2. Defendants’ Answering Brief

Defendants’ construction is consistent with how a person of ordinary skill in the art would understand the term based on the intrinsic record. The specification notes that “different devices 130 may be operable using different sets of instructions, that is having one of a variety of different ‘device platforms.’” ’755 patent at 4:66-5:1. Immediately after this statement, the specification provides the definition of “Player,” which is a “device- or device-platform specific instructions for processor 135 of the device.” *Id.* at 5:9-12. Elsewhere, the specification states that “device-specific” routines are “codes that are specific to the operating system, programming language, or platform of specific devices.” ’755 patent at 3:58-62. The specification further states that the claimed code is “parsed into instructions used by different device platforms and instructions that are independent of device platform.” ’755 patent at 5:18-20. The patent explains that this parsing of the code is “advantageous for the authoring process, since all of the device-dependent programming is provided to a device only once . . . permitting a smaller Application, which is the same for each device.” ’755 patent at 5:51-55.

During prosecution, the applicant distinguished prior art that allegedly included “device-specific” code, and argued that “device-specific” meant “each solution [of the prior art] operates on a specific device.” JCCC Ex. 18 at 13. A person of ordinary skill in the art would understand these statements to mean that “device-dependent” is code that differs depending on, and is specific to, the device platform. *See* Schmandt Decl. ¶¶ 231-32; *see also* JCCC Ex. 19 at 8 (claiming “code that is device specific may be maintained separately from code that [is] web service specific. If a new device comes on the market, or if it is found that the device-dependent code for a specific device needs an update, a new Player is developed and provided to those specific devices.”).

Defendants' construction also accurately captures the requirement that device-dependent code is executable, which is consistent with the specification's characterization of the Player as "instructions for the processor," *i.e.*, executable code. *See* Schmandt Decl. ¶ 234; '755 patent at 5:9-12; *see also id.* at 5:57-59. During prosecution, the applicant also repeatedly equated executable code with device-dependent code. *See, e.g.*, JCCC Ex. 19 at 10 ("device dependent (executable) code"); *see also* JCCC Ex. 15 at 10, 13; JCCC Ex. 18 at 9.

XMO's construction, on the other hand, does not explain what code being "aware" means, and its position that the code is only "aware" of device type or device-specific functions, confuses device configuration with device dependence. *See* Schmandt Decl. ¶¶ 235-37.

3. Express Mobile's Reply Brief

Express Mobile's construction is taken directly from the specification, which states that the "Player" could contain "the operator or device type or extended device-specific functions that the *player would then become aware of.*" '755 at 34:4-11. To a POSA, this reflects that device-dependent code is *aware of* available device-specific functions in order to be executed successfully. Ex. 4 ¶¶ 77-79; Ex. 4K, Weadock Dep. at 89:12-18 ("platform dependence" means "that there is at least some awareness at some level of distinctions between the platforms"). The specification is consistent with the understanding of POSA and definitions of "device-dependent" from technical dictionaries. Ex. 4 ¶ 77; Ex. 4M (IBM Dictionary of Computing, at 193) ("device dependence" as "reliance on the characteristics of devices in writing and executing programs or in performing functions"). A POSA would also understand that "device configuration" is merely one way that device-dependent code can be made "aware of" the availability of device-specific functions. Ex. 4 ¶ 78.

Defendants' construction is too narrow. "Device-dependent" code *may* "differ depending on the device platform," but identical "device-dependent" code, such as a "Universal Player," may

also work for a range of device-platforms as long as it is aware of and can leverage the availability of some (but not all) device platforms. Ex. 4 ¶ 78. None of Defendants’ citations to stray statements in the specification or prosecution history alter that fundamental fact. On the contrary, they reinforce that “device-dependent” code may be the same for different devices that use the same operating systems or programming languages. *Id.* Finally, Defendants’ additional requirement that “device-dependent code” necessarily is “executable code” remains inappropriate. The ’755 specification teaches that both application and player can be implemented in a Portable Description Language (PDL), which is non-executable, and incorporates the entirety of the ’397 patent specification by reference, which contains numerous additional references to non-executable code. ’755 at 6:51-53; 6:49-51, 7:1-3; Ex. 4 ¶ 79. It is noteworthy that Defendants have attempted to artificially impart “execute” or “executable” language into the meaning of each of the terms Application, Player, and “device-dependent code.” The Court should reject this attempted third bite at the apple.

4. Defendants’ Sur-reply Brief

The specification does not suggest the Player is written in the “Portable Description Language (PDL)” as XMO now suggests. *Supra* at 82-83. Instead it states that the PDL is a “common language” for the Application, Player, and authoring tool. ’755 patent at 6:48–53. This refers to fact that the Application, Player, and authoring tool all *understand* the PDL, not that the Player *is* a PDL. *See* Schmandt Suppl. Decl. ¶ 100.

XMO’s citation to the idea of a “Universal Player” is inapposite. A “Universal Player” is a Player that includes all possible code libraries for any possible application used on the device, not just the code library(ies) for the current application. ’755 patent at 17:66–18:1; Schmandt Suppl. Decl. ¶ 99. This implementation is irrelevant to the meaning of “device-dependent.” *Id.*

G. “device-independent code”

Express Mobile Construction	Defendants’ Construction
No construction necessary <i>Alternative:</i> code that is not aware of or dependent on device type or device-specific functions	code that is the same for every device platform

1. Express Mobile’s Opening Brief

“Device-independent code” need not be construed. It is simply code that that does not depend upon—and is thus not aware of—the particular devices for which it is intended to be used. Ex. 2 ¶ 110. Shopify’s proposed construction of “code that is the same for *every device platform*” is unduly limiting. “Device-independent” code can be code that is not specific to a particular device, and can apply to a range of devices. *See* ’755 at 3:58-62, 4:66-5:24, 5:49-64, 6:6-17.

2. Defendants’ Answering Brief

Defendants’ construction is a mirror of Defendants’ proposal for “device-dependent” code. *See supra* at 81-82. Specifically, where device-dependent code is code that differs depending on the device platform, device-independent code is code that is the same for every device platform. Defendants’ construction is supported by the intrinsic evidence, for the reasons discussed above relating to “device-dependent code.” Schmandt Decl. ¶¶ 242-44.

3. Express Mobile’s Reply Brief

“Device-independent code” does not need construction in light of Express Mobile’s proposed construction of “device-dependent code.” To the extent a construction is necessary, “device-independent” code is code that is “not aware of or depend on device type or device-specific functions.” Ex. 4 ¶ 80. Defendants’ construction of “device-independent” code, again, is unduly limiting because it requires code to be universally the same for “*every*” device and platform. *Id.* It is well-known that programmers often have to make different versions of a JavaScript code

due to browser compatibility issues. *Id.* Defendants’ narrow construction, therefore, directly contradicts Defendants’ expert’s own testimony that JavaScript is a device-independent code. *See* Ex. 4H, Schmandt Dep. at 261:18-20.

4. Defendants’ Sur-reply Brief

XMO misstates Defendants’ construction for this term, which is “code that is the same for every device platform.” The patent states that different device platforms are platforms that use different sets of instructions. ’755 patent at 4:66–5:1. JavaScript code is device-independent (i.e. is the same regardless of the platforms’ use of different instruction sets) because it implements the same instruction set (JavaScript) regardless of the platform. Schmandt Suppl. Decl. ¶¶ 103–04.⁴⁰ A programmer may choose to optimize the code for each browser, but the code itself remains device-independent. *Id.*

H. “produce . . . ; and a player”

Express Mobile Construction	Defendants’ Construction
No construction necessary	produce . . . , and a Player

1. Express Mobile’s Opening Brief

Shopify proposes that the claim phrase “produce . . . ; and a Player” in claim 1 of the ’287 patent be rewritten to read “produce . . . , and a Player.” Express Mobile submits that it is incorrect to rewrite this limitation. Indeed, Shopify cites no intrinsic evidence from the specification in support of this argument, and references a single page of the file history that does not specifically reference the modification that Shopify seeks. *See* DI 69 at 32-33. The structure of claim 1 of the ’287 patent is a system claim that contains three primary components with specific detailed elements—a “computer memory,” (37:50-62), an “authoring tool” (38:63-39:18), and a Player

⁴⁰ XMO’s argument would mean its proposed construction is wrong too, because the code *would* depend on device type or device-specific functions. Dkt. No. 111 at 3.

(39:19-37). The patentee inserted semicolons into the claims to demarcate these three primary elements. '287 at 37:62, 39:18. The implication is that the “authoring tool” “produce[s] an Application . . . , where said Application is a device-independent code,” as the claim recites, full stop. '287 at 38:16-18. “[A] Player” is then the next, distinct, primary component of the claims. It is not required to be “produce[d]” by the authoring tool. Express Mobile’s position is consistent not only with the overall claim language of claim 1, but also claim 15, which recites “producing an Application” in its own distinct limitation, without reference to how or whether the Player is “produced” as part of the method. '287 at 39:44-51. Ex. 2 ¶¶ 114-115.

2. Defendants’ Answering Brief

Defendants’ construction clarifies that the Player is produced by the authoring tool, as the applicant represented during prosecution. During prosecution of the '287 patent, the applicant amended the claims and stated that the amendment was “*identical* to amendment to the claims made in the issued parent of this application, U.S. Patent No. 9,063,755.” See JCCC Ex. 20 at 8; JCCC Ex. 17 at 2-3. Despite this statement, the syntax of claim amendments were not identical. Compare Ex. 12 at 3-4, with '755 patent at claim 1; JCCC Ex. 15 at 2-4. To make the relevant asserted claims consistent applicant’s statement, the semicolon should be changed to a comma, so that the authoring tool produces the Player, as in “identical” claim 1 of the '755 patent.

3. Express Mobile’s Reply Brief

The claim language of this limitation in claim 1 of the '287 patent should remain intact. Defendants attempt to rewrite the claims based on a generic statement in the prosecution of the '287 patent that certain amendments were “identical to amendment to the claims made in [the '755 patent].” JCCC Ex. 20 at 8. While claim 1 of the '287 patent was amended to be very similar to claim 1 of the '755 patent, there were significant differences in the claims, including the semicolon, the word “produce,” and broad swaths of additional language recited in claim 1 of the '287 patent.

Ex. 4 ¶ 82; ’287 37:57-61, 38:1-7, 38:1115, 38:18. Defendants’ fail to address deletion of all this additional language or adding the word produce. In fact, Defendants’ expert did not even “offer an opinion on this claim construction dispute.” Schmandt Decl. ¶ 246. Defendants attempted rewrite of the claim language also fails as a matter of law because it is undisputed that a POSA would not view the language as a mistake. *Novo Indus. L.P. v. Micro Molds Corp.*, 350 F.3d 1348, 1354 (Fed. Cir. 2003). Mr. Weadock explained the use of the semicolon was consistent with its use in claim 15 and the specification of the same patent, which recited “producing an Application” but did not specifically limit how the Player of the pertinent device was produced. ’287 at 39:44-51; 39:15-16 (reciting “a device having a player,” without indicating how it was “produced” or “provided”).

4. Defendants’ Sur-reply Brief

Defendants’ proposed construction should be adopted, because the applicant argued that the amendments to the ’287 patent claims that added the term at issue here were “identical,” not “similar” as XMO argues. JCCC Ex. 20 at 8; compare with Ex. 12 at 3–4 (showing the “other amendments” included the “produce . . . , and a Player” term).

I. “UI object / User Interface (UI) Objects”

Express Mobile Construction	Defendants’ Construction
No construction necessary	object(s) placed on canvas that are intended for interaction with user of device, that can be associated with actions or web bindings, and that have some form, color, and display location associated with it

1. Express Mobile’s Opening Brief

A “UI object” does not need a construction because it is a term that is generally known to the person of ordinary skill in the art. Ex. 2 ¶ 116. These objects are nothing more than “objects” intended for “user interaction” in the context of the ’755 patent family. As the ’755 patent explains,

UI objects generally are objects “intended for interaction with [the] user of [the] device.” ’755 at 14:15-18. They are objects that can be displayed for the user of the device and used for navigation, as shown in Figure 5 (“launch strip 501”). ’755 at 24:28-49. Shopify again asserts that this well understood term must be construed in an effort to improperly read extraneous limitations into the claim term. Specifically, Shopify attempts to read the words certain actions and web bindings, relating to some of the disclosed embodiments, into the claims. But optional aspects of a UI objects for certain embodiments should not limit the construction of “UI object.” Similarly, while the word “canvas” is sometimes used in the specification, importing a requirement that objects be placed on a “canvas” is unnecessary, improper, and will only confuse the jury.

2. Defendants’ Answering Brief

The specification provides a definition of a UI object: “Objects placed on canvas 305 are intended for interaction with user of device 130 and are referred to herein, without limitation, as objects or UI (user interface) objects. In addition, the user of interface 300 may assign or associate actions or web bindings to UI objects placed on canvas 305[.]” ’755 patent at 14:1521. The specification further states, without limiting language, that: “Each UI object has some form, color, and display location associate [sic] with it.” *Id.* at 17:28-29. The patentee’s explicit definition governs, and Defendants’ proposed construction, which tracks this definition, should be adopted. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1316 (Fed. Cir. 2005) (where applicant provides a special definition, “the inventor’s lexicography governs”).

3. Express Mobile’s Reply Brief

Neither Defendants nor their expert dispute that UI object has a plain and ordinary meaning, which is an “object” intended for “user interaction.” Ex. 4 ¶ 83. Defendants assert that the patentee provided a “special definition” that overrides the plain meaning of the term. “To be his own lexicographer, a patentee must use a ‘special definition of the term [that] is clearly stated

in the patent specification or file history.” *Laryngeal Mask Co. Ltd. V. Ambu*, 618 F.3d 1367, 1372 (Fed. Cir. 2010) (quoting *Vitrionics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1580 (Fed. Cir. 1996)). No such definition was given here. Defendants argue a single line in the specification universally defines UI object, even though that sentence is in a paragraph discussing “one embodiment.” ’755 at 14:5. Defendants then seek to add additional overly prescriptive limitations to its definition from succeeding sentences of that paragraph. But UI objects are discussed in the context of numerous other embodiments. *See* Ex. 2 ¶ 116; Ex. 4 ¶ 83. Other than providing examples of some things that may be referred to as UI objects, the quoted statement “does not clearly indicate the patentee’s intent to give [UI object] a unique meaning different from its ordinary and customary meaning to one of skill in the art.” *Laryngeal Mask Co.*, 618 F.3d at 1372. There was no special definition and the ordinary meaning should apply.

4. Defendants’ Sur-reply Brief

Defendants’ construction reflects the definition of “UI object” in the specification, provided “without limitation” to a specific example.⁴¹ ’755 patent at 14:15–21.

⁴¹ XMO incorrectly claims that both experts agree that “UI object” has an ordinary meaning. At most, both experts stated that “UI” and “objects,” separately have understood meanings. Weadock Supp. Decl. ¶ 83; Schmandt Decl. ¶ 248; Ex. 21 (Schmandt Tr.) at 319:4-320:7.

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