IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

EXPRESS MOBILE, INC.,	§	
	§	
Plaintiff,	§	
	§	
v.	§	No. 2:17-CV-00130-JRG-RSP
	§	(Lead Case)
SVANACO, INC., ET AL.,	§	
	§	
Defendants.	§	

CLAIM CONSTRUCTION MEMORANDUM OPINION AND ORDER

On January 29, 2018, the Court heard argument on the proper constructions for disputed claim terms in U.S. Patents 6,546,397 and 7,594,168 (the Asserted Patents).[1] In general, the Asserted Patents are directed to technology for designing and building webpages. '397 Patent at (57); '168 Patent at (57). The inventions display an in-work webpage in real time so a web developer can view the webpage during editing as it would appear to an end user viewing the webpage through a browser.

I. LEGAL PRINCIPLES

A. Claim Construction Generally

"It is a 'bedrock principle' of patent law that 'the claims of a patent define the invention to which the patentee is entitled the right to exclude.'" *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Innova/Pure Water Inc. v. Safari Water Filtration Sys., Inc.*,

[1] Because the '168 Patent issued from a continuation of the application for the '397 Patent, the Court cites the '397 Patent with the understanding the '168 Patent has substantially the same disclosure.

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381 F.3d 1111, 1115 (Fed. Cir. 2004)). To determine the meaning of the claims, courts start by considering the intrinsic evidence, which includes the claims themselves, the specification, and the prosecution history. *Id.* at 1313–14; *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 861 (Fed. Cir. 2004); *Bell Atl. Network Servs., Inc. v. Covad Commc'ns Group, Inc.*, 262 F.3d 1258, 1267 (Fed. Cir. 2001).

"The claim construction inquiry . . . begins and ends in all cases with the actual words of the claim." *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1248 (Fed. Cir. 1998). "[I]n all aspects of claim construction, 'the name of the game is the claim.'" *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1298 (Fed. Cir. 2014) (quoting *In re Hiniker Co.*, 150 F.3d 1362, 1369 (Fed. Cir. 1998)).

A term's context in the asserted claim can be instructive. *Phillips*, 415 F.3d at 1314. Other asserted or unasserted claims can also help determine the claim's meaning, because claim terms are typically used consistently throughout the patent. *Id.* Differences among the claim terms can also assist in understanding a term's meaning. *Id.* For example, when a dependent claim adds a limitation to an independent claim, courts should presume the independent claim does not include the limitation. *See id.* at 1314–15.

"[C]laims 'must be read in view of the specification, of which they are a part.'" *Id.* (quoting *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc)). "[T]he specification 'is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.'" *Id.* (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)); *see also Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed. Cir. 2002).

But "[a]lthough the specification may aid the court in interpreting the meaning of disputed

claim language, particular embodiments and examples appearing in the specification will not generally be read into the claims." *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1571 (Fed. Cir. 1988); *see also Phillips*, 415 F.3d at 1323. "[I]t is improper to read limitations from a preferred embodiment described in the specification—even if it is the only embodiment—into the claims absent a clear indication in the intrinsic record that the patentee intended the claims to be so limited." *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 913 (Fed. Cir. 2004).

The prosecution history can also supply the proper context for claim construction because, like the specification, it shows how the United States Patent and Trademark Office and the inventor understood the patent. *Phillips*, 415 F.3d at 1317. But "because the prosecution history represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation, it often lacks the clarity of the specification and thus is less useful for claim construction purposes." *Id.* at 1318; *see also Athletic Alternatives, Inc. v. Prince Mfg.*, 73 F.3d 1573, 1580 (Fed. Cir. 1996) (noting ambiguous prosecution history may be "unhelpful as an interpretive resource").

Although extrinsic evidence can also be useful, it is "'less significant than the intrinsic record in determining the legally operative meaning of claim language.'" *Phillips*, 415 F.3d at 1317 (quoting *C.R. Bard, Inc.*, 388 F.3d at 862). Technical dictionaries and treatises might help a court understand the underlying technology and the manner in which one skilled in the art uses claim terms, but they also might provide definitions that are too broad or not indicative of how the terms are used in the patent. *Id*. at 1318. Similarly, expert testimony might help a court understand the underlying technology and determine the particular meaning of a term in the pertinent field, but an expert's conclusory, unsupported assertions as to a term's definition are entirely unhelpful to a court. *Id.* Generally, extrinsic evidence is "less reliable than the patent and its prosecution history

in determining how to read claim terms." *Id.; see also Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 841 (2015) ("In some cases, however, the district court will need to look beyond the patent's intrinsic evidence and to consult extrinsic evidence in order to understand, for example, the background science or the meaning of a term in the relevant art during the relevant time period.").

B. Departing From the Ordinary Meaning of a Claim Term

Generally, courts give each claim term its ordinary and accustomed meaning as understood by one of ordinary skill in the art at the time of the invention in the context of the patent. *Phillips*, 415 F.3d at 1312–13; *see also Azure Networks, LLC v. CSR PLC*, 771 F.3d 1336, 1347 (Fed. Cir. 2014) ("There is a heavy presumption that claim terms carry their accustomed meaning in the relevant community at the relevant time.") (vacated on other grounds). There are, however, exceptions to that general rule, such as "1) when a patentee sets out a definition and acts as his own lexicographer, or 2) when the patentee disavows the full scope of the claim term either in the specification or during prosecution."[2] *Golden Bridge Tech., Inc. v. Apple Inc.*, 758 F.3d 1362, 1365 (Fed. Cir. 2014) (quoting *Thorner v. Sony Computer Entm't Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012)); *see also GE Lighting Solutions, LLC v. AgiLight, Inc.*, 750 F.3d 1304, 1309 (Fed. Cir. 2014) ("[T]he specification and prosecution history only compel departure from the plain meaning in two instances: lexicography and disavowal.").

The standards for finding lexicography or disavowal are "exacting." *GE Lighting Solutions,*

[2] Some cases have characterized other principles of claim construction as "exceptions" to the general rule, such as the statutory requirement that a means-plus-function term is construed to cover the corresponding structure disclosed in the specification. *See, e.g., CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1367 (Fed. Cir. 2002).

750 F.3d at 1309. To act as his own lexicographer, the patentee must "clearly set forth a definition of the disputed claim term," and "clearly express an intent to define the term." *Id.* (quoting *Thorner*, 669 F.3d at 1365); *see also Renishaw*, 158 F.3d at 1249. The patentee's lexicography must appear "with reasonable clarity, deliberateness, and precision." *Renishaw*, 158 F.3d at 1249. To disavow or disclaim the full scope of a claim term, the patentee's statements in the specification or prosecution history must amount to a "clear and unmistakable" surrender. *Cordis Corp. v. Boston Sci. Corp.*, 561 F.3d 1319, 1329 (Fed. Cir. 2009); *see also Thorner*, 669 F.3d at 1366 ("The patentee may demonstrate intent to deviate from the ordinary and accustomed meaning of a claim term by including in the specification expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope."). "Where an applicant's statements are amenable to multiple reasonable interpretations, they cannot be deemed clear and unmistakable." *3M Innovative Props. Co. v. Tredegar Corp.*, 725 F.3d 1315, 1326 (Fed. Cir. 2013).

C. Definiteness Under 35 U.S.C. § 112, ¶ 2 (pre-AIA) / § 112(b) (AIA)[3]

Patent claims must particularly point out and distinctly claim the subject matter regarded as the invention. 35 U.S.C. § 112, ¶ 2. A claim, when viewed in light of the intrinsic evidence, must "inform those skilled in the art about the scope of the invention with reasonable certainty." *Nautilus Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2129 (2014). If it does not, the claim fails § 112, ¶ 2 and is invalid as indefinite. *Id.* at 2124.

Courts decide whether a claim is indefinite from the perspective of one of ordinary skill in the art at the time the applicant filed the patent application. *Id.* at 2130. As it is a challenge to the

[3] Because the application resulting in the '055 Patent was filed before September 16, 2012, the effective date of the AIA, the Court refers to the pre-AIA version of § 112.

validity of a patent, the failure of a claim to comply with § 112 must be shown by clear and convincing evidence. *Id.* at 2130 n.10. "[I]ndefiniteness is a question of law and in effect part of claim construction." *ePlus, Inc. v. Lawson Software, Inc.*, 700 F.3d 509, 517 (Fed. Cir. 2012).

Not surprisingly, indefiniteness challenges frequently involve terms of degree and subjective terms. When a term of degree is used in a claim, "the court must determine whether the patent provides some standard for measuring that degree." *Biosig Instruments, Inc. v. Nautilus, Inc.*, 783 F.3d 1374, 1378 (Fed. Cir. 2015) (quotation marks omitted). Likewise, when a subjective term is used in a claim, "the court must determine whether the patent's specification supplies some standard for measuring the scope of the [term]." *Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1351 (Fed. Cir. 2005); *accord Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1371 (Fed. Cir. 2014) (citing *Datamize*, 417 F.3d at 1351).

II. AGREED CONSTRUCTIONS

The parties agreed to constructions for certain terms. Joint Claim Construction Chart [Dkt. # 90]. Having reviewed the intrinsic and extrinsic evidence, the Court agrees with and adopts those constructions:

Term[4]	Agreed Construction
settings ('397 Patent cl. 1, 2, and 37)	an attribute of an object available for selection
at least one run time file ('397 Patent cl. 1, 2)	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

[4] For all term charts in this order, the claims containing the term are listed with the term, but (1) only the highest-level claim in each dependency chain is listed, and (2) only asserted claims identified in the parties' Joint Construction Chart [Dkt. # 90] are listed.

one or more run time files ('397 Patent cl. 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
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 ('168 Patent cl. 1)	a web browser configured to generate, using a runtime engine, the web-site from the objects and style data extracted from the provided database (see separate construction of "runtime engine")
external database ('397 Patent cl. 37)	a database external to the build tool (see separate construction of "database" term)
internal database ('397 Patent cl. 37)	a database internal to the build tool and distinct from the external database (see separate construction of "database" term)
transformation ('168 Patent cl. 1)	the changing of an object from one state to another based on a timer control, subject to user settings
multidimensional array structured database ('397 Patent cl. 3)	no construction necessary other than the separate constructions of "multidimensional array" and "database"

III. CONSTRUCTION OF DISPUTED TERMS

A. virtual machine

Disputed Term	Plaintiff's Proposed Construction	Defendant's Proposed Construction
virtual machine ('397 Patent cl. 1, 2, 37)	an abstract machine that is not built in hardware but is emulated in software	software that emulates a hypothetical computer and executes intermediate code in the instruction set of that hypothetical computer *Alternatively*: software that emulates a hypothetical computer and runs compiled code

The Parties' Positions

The parties dispute whether "virtual machine" includes only "intermediate code in the instruction set" of the hypothetical (or abstract) computer. Plaintiff submits the Asserted Patents use "virtual machine" according to its well-understood meaning in the art: A "virtual machine" takes functions that would otherwise be performed in hardware and performs them in software. Pl.'s Cl. Constr. Br. [Dkt. # 78] at 14–15. Plaintiff contends "virtual machine" is not limited to a particular programming language, and that Defendant's proposed construction would improperly limit it to a specific form of code.[5] *Id.* at 17–22. For example, the Asserted Patents distinguish compiled "byte code" from other information—such as image objects compressed and included in CAB and JAR files—both of which are sent to the virtual machine. *Id.* at 18–19 (citing '397 Patent at 43:28–32, 44:36–45).

Defendant responds the "virtual machine" executes converted code, "not simply human-readable markup or scripting language." Def.'s Resp. Cl. Constr. Br. [Dkt. # 82] at 11–15. Defendant therefore includes "compiled" and "intermediate" in its proposed construction to denote the converted nature of the virtual-machine code. *Id.*

Analysis

There is little guidance as to the meaning of this term in the intrinsic evidence. The Asserted Patents only use "virtual machine" in reference to a "JAVA Virtual Machine." *See* '397 Patent at 35:34–38. The prosecution history similarly lacks any explanation of the meaning of the term. *See, e.g.*, Amendment After Final (Dec. 13, 2001) [Dkt. # 78-4] at 4–7.

The extrinsic evidence, however, strongly suggests a virtual machine has its own version

[5] Plaintiff directs its code-form argument at Defendant's original proposed construction requiring "compiled code."

of code that differs from the code of the underlying real machine. For example, one reference explains virtual machines address the difficulty of compiling source code into the machine code of different computers. *Encyclopedia of Computers and Computer History* [Dkt. # 78-12] at 3–4. Instead of compiling anew for each different real machine, the source code is compiled or interpreted into code for the virtual machine. *Id.* (noting "[a]ll Java *compilers and interpreters* produce code for the [Java Virtual Machine]" and the Pascal virtual machine uses "P-code, the instruction set of the virtual machine" (emphasis in original)). Another reference explains a virtual machine "executes the instructions of an invented MACHINE LANGUAGE or PSEUDO-CODE." *The New Penguin Dictionary of Computing* [Dkt. # 78-13] at 4 (emphasis in original). Still another reference defines a virtual machine as "[a]n abstract computing machine *for which an interpreter exists*." *The Dictionary of Computing & Digital Media: Terms & Acronyms* [Dkt. # 78-14] at 3–4 (emphasis added). *See also* Kruetzfeldt Dep. [Dkt. # 82-2] at 129:9–17 (agreeing "it's necessary to translate from source code into some sort of intermediate representation that constitutes the instruction set for [a] virtual machine); Schmandt Decl. [Dkt. # 82-10] ¶ 19 (noting "[h]aving an intermediate code as the instruction set of the virtual machine is inherent in the very concept of a virtual machine").

Both parties' positons are flawed. First, the Court declines to adopt Defendant's proposed "instruction set" language. While it is technically correct to describe the "intermediate code" as the instruction set of the virtual machine, *see, e.g.*, Kruetzfeldt Dep. [Dkt. # 82-2] at 129:9–17; Schmandt Decl. ¶ 19, [Dkt. # 82-10]; *Encyclopedia of Computers and Computer History* [Dkt. # 78-12] at 3–4, Defendant's proposed language threatens to inject ambiguity without clarity. Thus, the Court views "instruction set" as both redundant and potentially confusing to the jury.

Second, Plaintiff's argument that the Asserted Patents describe a virtual machine executing

something other than compiled/intermediate code is not persuasive. Plaintiff appears to conflate processing and executing, but that a virtual machine executes intermediate code does not preclude it from processing other information. For example, while CAB and JAR files might include information that is not compiled/interpreted code, Plaintiff has not identified any example of a virtual machine executing such code. Indeed, the patents describe that, when executed, a runtime engine identifies information in the CAB or JAR files and then reads that information. '397 Patent at 45:44–65. In other words, not all information in CAB and JAR files is "executed." And there is no intrinsic evidence suggesting a virtual machine executes something other than its intermediate code.

The Court finds the Asserted Patents use "virtual machine" according to the plain and ordinary meaning of the term. The evidence strongly indicates a virtual machine executes intermediate code. The Court, however, declines to include Defendant's proposed "instruction set" language. Accordingly, the Court construes "virtual machine" as "abstract machine that is emulated in software and that executes intermediate code."

B. runtime engine

Disputed Term	Plaintiff's Proposed Construction	Defendant's Proposed Construction
runtime engine ('168 Patent cl. 1)	a file that is executed at runtime that facilitates retrieval of information from the database and generates commands to display a web page or website	a file containing compiled code that, when executed, generates virtual machine commands to dynamically produce a web page

The Parties' Positions

The parties dispute whether the "runtime engine" necessarily includes compiled code.

Plaintiff submits the Asserted Patents broadly describe "runtime engine" as retrieving information for a webpage and producing the webpage. Pl.'s Cl. Constr. Br. [Dkt. # 78] at 23. During prosecution, this broad description was not narrowed to any specific functionality or form. *Id.* at 23–24. Defendant's proposed construction, however, improperly limits the runtime engine to an exemplary embodiment in which the file is compiled. *Id.* at 24. And Defendant's construction would exclude the disclosed embodiment of the virtual machine that accepts a runtime engine comprising uncompiled information. *Id.* During prosecution, the applicant distinguished U.S. Patent 5,842,020 (Faustini) based on that reference's need to generate the full run-time code when authoring or editing a webpage—not on whether the runtime engine is compiled. *Id.* at 20–22.

Defendant responds that "runtime engine" expressly denotes compiled code. Def.'s Resp. Cl. Constr. Br. [Dkt. # 82] at 15–17. In distinguishing Faustini, the applicant argued his invention stores certain information necessary to generate the webpage in a database rather than in the runtime engine. By moving the information out of the runtime engine and into the database, the claimed inventions enable easier implementation of code updates by avoiding recompilation. *Id.* at 15–16. Thus, the applicant represented "runtime engine" as a compiled file, *id.*, and there is no runtime engine described in the Asserted Patents that is not compiled, *id.* at 17–18. And even if the virtual machine of the Asserted Patents may process uncompiled code, it may also process compiled code, so requiring the runtime engine to be compiled does not prevent the virtual machine from processing it. *Id.*

Plaintiff replies the applicant's prosecution-history description of "runtime engine" was of Faustini's runtime engine, not of the "runtime engine" of the Asserted Patents or of "runtime engine" in the abstract. Pl.'s Reply Br. [Dkt.# 87] at 8–10. The distinction between the Asserted Pa-

tents and Faustini is not the avoidance of recompiling the runtime code, but rather that the invention does not require the entire Faustini process of "compilation of the full run time code when the page is created, and then 'recompilation' of the full run time code if the page is later edited." *Id.* at 9. Further, says Plaintiff, the Faustini argument relates to authoring a webpage, and the runtime engine of the invention need not be compiled in the authoring stage. *Id.* at 9–10 (citing Schmandt Dep. [Dkt. # 87-2] at 104:16–18, 106:14–107:17).

Analysis

The Asserted Patents describe runtime engines (or "run time engines") as including compiled code. Figure 25 and the accompanying text describe the techniques used to create a run time engine, such as "compil[ing] and convert[ing] into byte code" the "customized run engine and a library of the referenced run time classes." '397 Patent at fig.25, 42:8–31. The Asserted Patents describe the "run time engine" as including an applet, *id.* at 44:17–18, and the browser can "execute the run time engine," *id.* at 44:28–31. "A JavaScript function is then called which use[s] the JavaScript 'document.write' function to generate HTML code that define[s] the run time engine specifications, etc. (see FIG. 26) and cause[s] the browser to immediately execute the run time engine." *Id.* at 45:33–37.

This comports with the prosecution-history remarks concerning Faustini. In distinguishing Faustini, the applicant noted "web pages generated by Faustini result from *a Faustini run time engine* which is an *interpreted or executable file*, such as virtual machine commands, and which contains within the Faustini run time code all of the information necessary to generate a display." Amendment After Allowance (Dec. 13, 2001) [Dkt. # 78-4] at 5 (emphasis added). In other words, the Faustini runtime engine is "an interpreted or executable file," which the Court understands to

mean "compiled." While this statement concerns Faustini's runtime engine—not the compiled nature of runtime engines in the abstract—the applicant noted his runtime engine differed from Faustini's engine not because of its compiled nature, but because of its content. *See id.* (noting "the claimed invention stores the attributes of the display separately from the run-time code, permitting the user of the claimed invention to change the attributes of the web page *without requiring a recompilation of the run-time code*") (emphasis added).

The Court finds "runtime engine" necessarily includes compiled code in the sense that it includes code in a form that may be executed by a real or virtual machine. Accordingly, the Court construes "runtime engine" as "a file containing code that can be executed and that, when executed at runtime, facilitates the retrieval of information from the database and generates commands to display a web page or website."

C. contemporaneously; substantially contemporaneously

Disputed Term	Plaintiff's Proposed Construction	Defendant's Proposed Construction
substantially contemporaneously ('397 Patent cl. 1, 2)	substantially in the same time period, from a human perspective	happening at the same period of time from a human perspective Alternatively, this claim is indefinite.
contemporaneously ('397 Patent cl. 37)	in the same time period, from a human perspective	happening at the same period of time

The Parties' Positions

The parties dispute the proper perspective for measuring "substantially contemporaneously" and "contemporaneously." Plaintiff submits that whether a display is generated "contem-

poraneously" with the acceptance of an assembly of settings, as described and claimed, is determined from a human rather than computer perspective. Pl.'s Cl. Constr. Br. [Dkt. # 78] at 25–26 (citing '397 Patent at 23:21–27). Plaintiff also submits that generating a display "substantially contemporaneously" with the selection of settings indicates there is "some form of updating as changes are made to the web page during creation or editing, and distinguishes the inventions from systems in which the screen is static when changes are made." *Id.* at 29.

Defendant responds that "substantially contemporaneously" is a term of degree that must be understood with respect to the standard of a human perspective as provided in the Asserted Patents. Def.'s Resp. Cl. Constr. Br. [Dkt. # 82] at 18–19 (citing '397 Patent at 23:21–27). Defendant argues two events occur "substantially contemporaneously" if they appear to a human to occur at the same time. *Id.* Defendant further argues any construction of "substantially contemporaneously" that allows for perceptible differences in the timing of the two events would be indefinite, as there is no objective boundary as to how long a difference would qualify. *Id.* at 19–21. On the other hand, says Defendant, "contemporaneously" is *not* measured from the human perspective, but that does not require measurement "in terms of a particular number of clock cycles." *Id.* at 22–24.

Analysis

The disputed claim language relates to the timing of generating a display relative to the selection or acceptance of user-selectable settings used to generate the display. Claim 1 of the '397 Patent, for example, recites "generating a display in accordance with one or more user selected settings substantially contemporaneously with the selection thereof." '397 Patent at 65:56–58. Claim 2 recites "a browser to generate a display in accordance with one or more user selected settings substantially contemporaneously with the selection thereof." *Id.* at 66:14–16. And Claim

37 recites "generat[ing] the display in accordance with said assembly of settings contemporaneously with the acceptance thereof." *Id.* at 68:54–56.

The Asserted Patents describe the timing between the user's selection of a setting and the generation of the corresponding display. For example, with reference to Figure 37, the patents provide that

> [t]he user interface includes a panel 400 and build frame 500. Panel 400 includes a menu bar 410, menus 420 and sub-menus 430, tool bars 440, status fields 450, interactive fields 460, interactive pull down lists 470 and operational pop-up windows 480. . . . Status fields 450 show the current value of a certain setting. *Interactive fields 460 also show the current value of a setting, but can also be directly changed by the user by typing into the field, with the result immediately processed by the build engine 352 and displayed in the build frame 500.* Interactive pull-down lists 470 also show the current value of a setting, but, if selected with a mouse click, will drop down a selection list, which may have an elevator attached. *The user can click on an item in the selection list, which will become the current setting with the result immediately processed by the build engine 352 and displayed in the build frame*. Operational pop-up windows 480 can have tabs assigned if the number of choices within the pop-up window is large. *One or more settings can be changed through a pop-up window, with the results immediately processed by the build engine 352 and displayed in the build frame 500*. These interface techniques are described in greater detail below in the build process.

'397 Patent at 10:16–53 (emphasis added). Referring to Figure 9, the patents further note

> [t]he polling technology is essential for creating the necessary two-way real time communication between the JavaScript/HTML interface and the JAVA build engine. . . . In one implementation, *two different techniques* were utilized to implement this capability. *The first* was to place the build engine inside a JAVA wrapper. The JAVA wrapper accepts direct communication from JavaScript function calls, interrogates a particular JAVA build engine method, and returns that method's return value back to the calling JavaScript function. *The second* technique was more unconventional. A polling loop is defined in the panel's (panel 400) JavaScript that *creates a near continuous, at least from a human perception point of view, dynamic real time link*, in order to monitor events occurring inside the build engine. The result is a real time retrieval (from an ergonomic perception point of view) of necessary data and status settings from the build engine back to the interface.

Id. at 22:66–23:27 (emphasis added).

Based on these excerpts, the Court agrees with Defendant that "substantially contemporaneous" is bounded by the "human perception point of view" and "contemporaneously" is not necessarily determined from a human perspective. Accordingly, the Court construes (1) "contemporaneously" to mean "happening at the same period of time," and (2) "substantially contemporaneously" to mean "happening at the same period of time from a human perspective."[6]

D. multidimensional array

Disputed Term	Plaintiff's Proposed Construction	Defendant's Proposed Construction
multidimensional array ('397 Patent cl. 3, 4; '168 Patent cl. 1)	an indexed set of related elements, wherein each element is addressed by a set of two or more indices	an indexed set of related elements wherein each element is addressed by a unique identifier and a set of two or more indices, each index corresponding to a dimension of the array *Alternatively*: an indexed set of related elements, wherein each element is addressed by an expression consisting of the array name followed by a set of two or more indices, each index corresponding to a dimension of the array

[6] When a term of degree is used in a claim, "the court must determine whether the patent provides some standard for measuring that degree." *Biosig Instruments, Inc. v. Nautilus, Inc.*, 783 F.3d 1374, 1378 (Fed. Cir. 2015) (quotation marks omitted). The standard "must provide objective boundaries for those of skill in the art." *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1371 (Fed. Cir. 2014). Here, whether the user selection and the generation of the display are "substantially" contemporaneous is determined from a human's perspective. Whether the user selection and the generation of the display are contemporaneous is determined without reference to a human's perspective. These standards are sufficient to provide the requisite objective boundaries.

The Parties' Positions

The parties dispute whether addressing the elements of the multidimensional array necessarily requires a unique identifier for the array. Plaintiff claims that, while some arrays may have elements addressed by an array name or unique identifier, this is not inherent to arrays. Pl.'s Cl. Constr. Br. [Dkt. # 78] at 29–30. Defendant responds that addressing an array in the invention requires a unique identifier for the array, or it would not be possible to distinguish one array from another. Def.'s Resp. Cl. Constr. Br. [Dkt. # 82] at 25–26. Plaintiff replies the invention does not require more than one multidimensional array so it is not necessary to have a unique identifier. Pl.'s Reply Br. [Dkt. # 87] at 12. Further, even in embodiments with more than one multidimensional array, it is possible to address array elements using their memory addresses. *Id.*

Analysis

The parties' dispute reduces to the meaning of "unique identifier" and whether that term includes a memory address. It does, but to avoid ambiguity, the Court construes the term so the array is "uniquely identifiable." Specifically, the Court construes "multidimensional array" as "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."

E. database

Disputed Term	Plaintiff's Proposed Construction	Defendant's Proposed Construction
database ('397 Patent cl. 1, 2, 37; '168 Patent cl. 1)	an electronic information storage system offering data storage and retrieval	a file composed of records, each containing fields together with a set of operations for searching, sorting, recombining, and other functions

The Parties' Positions

The parties dispute (1) whether a database necessarily comprises files containing records and fields, and (2) whether a database necessarily includes operations for searching, sorting, recombining, and other functions. Plaintiff submits that, as used in the Asserted Patents, "database" is a broad term. Pl.'s Cl. Constr. Br. [Dkt. # 78] at 31–32. Defendant's proposed construction improperly limits "database" to a subset of databases known in the art at the time of the invention—specifically, databases with a "recombining" function. *Id.* Moreover Defendant's proposed "other functions" language improperly injects ambiguity into the term. *Id.*

Defendant responds that a "database" is not just any means for storing electronic information. Def.'s Resp. Cl. Constr. Br. [Dkt. # 82] at 26–27. Rather, a "database" necessarily has structure (records and fields) and a set of operations for performing functions, which may be performed by logic separate from the database. *Id.* at 26–29. Plaintiff's proposed construction, says Defendant, improperly reads on any electronic media or file, including the prior-art runtime code disclosed in Faustini and distinguished during prosecution. *Id.* at 27–28.

Analysis

The Asserted Patents refer to the information in databases as divided into records. *See, e.g.*, '397 Patent at 22:61–65 (referring to "the header record, the style record, the web page record, and the object records" of a database), 41:30–32 ("The external database contains, as its first record, a 'Header' record, which contains can include the following information . . . ."); *see also generally id.* at 41:30–43:7. And the Asserted Patents describe the information within the records as divided into fields. *See, e.g.*, *id.* at 22:6–65 ("As a data field is added, changed or deleted, a determination is made at 69 on whether a value for a given high watermark needs to be changed."), 42:64–65 ("String records are stored utilizing an appropriate field delimiter technology."). This comports

with the extrinsic evidence of record. *See, e.g., Dictionary of Multimedia and Internet Applications: A Guide for Developers and Users* (1999) [Dkt. # 78-20] at 3 (noting "database" "describes the storage of information on a record by record basis. Records are divided into fields of different types").

As to the first disputed issue, a database is not limited to a "file," or even a collection of files. For example, the patents describe "[t]he data produced by the build engine is processed and ultimately placed into a multi-dimensional array structured database, and stored in an external file." '397 Patent at 2:37–39. This suggests that data in a database is not necessarily stored in a file, contrary to Defendant's proposed construction. *See also Dictionary of Multimedia and Internet Applications: A Guide for Developers and Users* [Dkt. # 78-20] at 3 (providing that database "records are stored in tables or files").

Concerning the second issue, the Court is not persuaded Defendant's proposed "operations" language is either necessary or helpful. For one, the list of operations is open ended, so how would one determine if the accused database has operations qualifying as "other functions"? That this language appears in a dictionary does not make the language either clear or appropriate for a claim construction. And a single reference within the Asserted Patents to an exemplary database that has available a "full array of database operations," '397 Patent at 33:27–34, is not enough for the Court to read in the "searching, sorting, recombining" functions, particularly in light of Plaintiff's expert's testimony that there are databases without a recombining function. Kruetzfeldt Decl. [Dkt. # 87-3] ¶ 58.

Accordingly, the Court construes "database" to mean "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."

IV. CONCLUSION AND ORDER

The Court **ORDERS** the parties to constrain all testimony that relates to the agreed and disputed terms to the Court's reasoning. Moreover, in the presence of the jury, the parties must not expressly or implicitly refer to each other's claim construction positions and must not expressly refer to any portion of this Order that is not an actual construction adopted by the Court. The references to the claim construction process must be limited to informing the jury of the constructions adopted by the Court.

SIGNED this 7th day of February, 2018.

ROY S. PAYNE
UNITED STATES MAGISTRATE JUDGE