



KEN PAXTON
ATTORNEY GENERAL OF TEXAS

CIVIL INVESTIGATIVE DEMAND

To: Alphabet Inc.
c/o Paul Yetter
811 Main Street
Suite 4100
Houston, TX 77002
713.632.8000
pyetter@yettercoleman.com

The Office of the Attorney General of Texas (“OAG”) is investigating anticompetitive conduct in markets relating to online advertising, online search, and mobile operating systems in Texas and the rest of the United States. Such activity may violate Section 15.05(b) of the Texas Free Enterprise and Antitrust Act of 1983, Tex. Bus. & Com. Code § 15.01 *et seq.* (the “Act”).

The OAG has reason to believe that you may have information and/or material relevant to its investigation and is therefore issuing you this Civil Investigative Demand (“CID”) pursuant to Section 15.10 of the Act. Please review the following instructions and definitions carefully before responding to this CID. The documents you submit must be produced under a sworn certificate in the form attached as Exhibit A. Your response should be submitted **on or before July 22, 2020** to Assistant Attorney General David M. Ashton, Antitrust Division, Texas Office of the Attorney General, 300 W. 15th Street, 7th Floor, Austin, Texas 78701 or, if delivered by mail, at P.O. Box 12548, Austin, Texas 78711.

Section 15.10(i)(5) of the Act governs OAG’s treatment of documents designated as containing trade secrets or confidential information. You should clearly designate documents or portions thereof, if any, that contain trade secrets or confidential information.

NOTICE

Any person who, with intent to avoid, evade, or prevent compliance, in whole or in part, with a CID, removes from any place, conceals, withholds, destroys, mutilates, alters, or by any other means falsifies any documentary material, or otherwise provides inaccurate information, is guilty of a misdemeanor which, on conviction, is punishable by a fine of not more than \$5,000, or by confinement in county jail for not more than one year, or both. Objections to this demand may be made in accordance with Section 15.10 of the Act.

Issued on June 22, 2020.

KEN PAXTON
Attorney General of Texas

JEFFREY C. MATEER
First Assistant Attorney General

RYAN BANGERT
Deputy First Assistant Attorney General

DARREN McCARTY
Deputy Attorney General for Civil Litigation

KIM VAN WINKLE
Chief, Antitrust Division

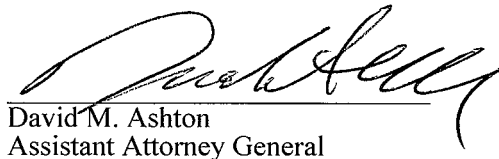


DAVID M. ASHTON
Assistant Attorney General
Antitrust Division
(512) 936-1781
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David.Ashton@oag.texas.gov

CERTIFICATE OF SERVICE

I certify that on June 22, 2020, a true and correct copy of this Civil Investigative Demand was sent via certified mail, return receipt requested, and via electronic mail, addressed as follows:

Alphabet Inc.
c/o Paul Yetter
Yetter Coleman, LLP
811 Main Street, Suite 4100
Houston, TX 77002
713.632.8000
pyetter@yettercoleman.com

A handwritten signature in black ink, appearing to read "David M. Ashton", is written over a horizontal line.

David M. Ashton
Assistant Attorney General

INSTRUCTIONS

1. Except as otherwise specified, this CID requires production of documents and information from January 1, 2014 to present day.
 - A. **This request is continuing in nature.** To the extent that Documents or information responsive to this CID are obtained or generated after the issuance of this CID, Your production and responses should be supplemented accordingly.
2. For Your response to this CID to be complete, the certification form attached as **Exhibit A** must be executed by the official supervising compliance with this CID, notarized, and submitted along with the responsive materials and information.
3. For the purposes of the request for documents, the following instructions apply:
 - A. No copying costs will be reimbursed unless a representative from the OAG has provided written approval, prior to submission, of the estimated cost of providing copies of the non-electronic documents requested in this CID. All other costs of complying with this CID will be borne by You.
 - B. If all or any portion of any responsive document is withheld for any reason, including a claim of attorney-client privilege, any other applicable privilege or immunity, or judicial order, please submit a list of the documents withheld and state individually as to each document: (1) the source of the document; (2) the name, address, position and organization of the author and recipient of the document; (3) the type, title, specific matter, length and date of the document; and (4) the reason for withholding the document, including, but not limited to, identifying the actual or anticipated litigation that underlies a claim of work product immunity.
 - C. Documents produced electronically must comply with the Specifications for Electronic Document Production attached hereto as **Exhibit B**.
 - a. In addition to the categories of documents and materials required to be produced in native form as stated in Exhibit B, You also must produce native files for any emails containing one or more hyperlinks in the body of the email (i.e., hyperlinks found in standard signature blocks do not, by themselves, require production of the email in native form).
 - D. All documents responsive to this request for documents, regardless of format or form and regardless of whether submitted in paper or electronic form:
 - a. shall be produced in complete form, unredacted unless privileged, and in the order in which they appear in Your files and shall not be shuffled or otherwise rearranged. For example:
 - i. if in their original condition papers were stapled, clipped or otherwise fastened together or maintained in file folders, binders, covers or containers, they shall be produced in such form, and any documents that must be removed from their original folders, binders, covers or containers to be produced shall be identified in a manner so as to clearly specify the folder, binder, cover or container from which such documents came; and
 - ii. if in their original condition electronic documents were maintained in folders or otherwise organized, they shall be produced in such form and information shall be produced so as to clearly specify the folder or organization format;

- b. shall be produced in color where necessary to interpret the document;
 - c. shall be marked on each page with corporate identification and consecutive document control numbers;
 - d. shall be accompanied by an index that identifies: (i) the name of each person from whom responsive documents are submitted; and (ii) the corresponding consecutive document control number(s) used to identify that person's documents, and if submitted in paper form, the box number containing such documents. If the index exists as a computer file(s), provide the index both as a printed hard copy and in machine-readable form (provided that OAG representatives determine prior to submission that the machine-readable form would be in a format that allows the agency to use the computer files).
- E. If books and records that provide accurate responses are not available, enter best estimates and describe how the estimates were derived, including the sources or bases of such estimates. Estimated data should be followed by the notation "est." If there is no reasonable way for You to make an estimate, provide an explanation.
- F. To the extent that any material responsive to a request for production is dynamic (e.g., a wiki or repository), produce in electronic format a Clone of said material, including all comments, versions, commits, revision history, and material from any associated information tracking systems, including, but not limited to, feature requests, bug reports, issues, sprints, tasks, user stories, project management, and trouble tickets.
4. If documents responsive to a particular document request no longer exist for reasons other than the ordinary course of business or the implementation of Your document retention policy as disclosed or described in response to an interrogatory or a document request, but You have reason to believe have been in existence, state the circumstances under which they were lost or destroyed, describe the documents to the fullest extent possible, state the document request(s) to which they are responsive, and identify persons having knowledge of the content of such documents.
 5. If there have been any changes that affected Your answer to an interrogatory during the time period applicable to that interrogatory, or if Your response to an interrogatory would have been different at any point during the time period applicable to that interrogatory, Your response must describe those changes and the reason(s) for those changes.
 6. If You are unable to respond to any request for documents or information fully, explain why such response is incomplete, the efforts made by You to obtain the information, and the source from which the complete response may be obtained.
 7. The section headings in the interrogatories and document requests are included solely for convenience or reference and shall not in any way affect the meaning or interpretation of any of the specific interrogatories or requests.
 8. The terms "and" and "or" have both conjunctive and disjunctive meanings.

**Questions concerning this CID should be directed to Assistant Attorney General
David M. Ashton (512-936-1781, David.Ashton@oag.texas.gov).**

DEFINITIONS

As used herein:

1. “**Ad Auction**” shall mean any auction to sell Ad Inventory in the Display Advertising Market.
2. “**Ad Exchange**” shall mean a digital marketplace for Ad Inventory that Publishers and Advertisers connect to, by direct or indirect means, in order to buy or sell their online Ad Inventory, including but not limited to AdX, AppNexus, The Rubicon Project, OpenX, ONE by AOL, or Oath, and including all predecessors and successors.
3. “**Ad Impression**” shall mean that specific advertisement displayed to a particular user in a specific ad space on a Publisher’s website.
4. “**Ad Inventory**” shall mean the ad space or impressions that any Publisher has available to sell in the Display Advertising Market.
5. “**Ad Request**” shall mean an electronic message sent from a browser to a Publisher Ad Server, SSP, or Ad Exchange requesting advertising content for insertion or incorporation into a web page. An Ad Request may be directed to a portion or the entirety of a web page, and it may include or consist of a Bid Request.
6. “**AdTech Products**” shall mean any and all systems and software, including predecessors and successors, used in the process of identifying, selecting, transmitting, and/or rendering display ads on a desktop or mobile device, as well as all systems and software, including predecessors and successors, that implement and/or effectuate an Ad Auction, including, but not limited to, receiving, processing, and transmitting Bid Requests, Bid Responses, or related messages. The term includes, but is not limited to, Google Ads, Google AdWords, Display & Video 360 (DV360), DoubleClick Bid Manager (DBM), Campaign Manager, DoubleClick Campaign Manager (DCM), AdX, Google Display Network (GDN), Google Ad Manager (GAM), and DoubleClick for Advertisers (DFA), including all predecessors and successors.
7. “**AdTech Auction Mechanics**” shall mean any and all systems and software that implement, effectuate, or modify any Ad Auction rules, preferences, designs, or features; this term includes but is not limited to Exchange Bidding, Open Bidding, Open Auction, Dynamic Allocation, Enhanced Dynamic Allocation, Optimized Competition, Real-Time Bidding, OpenRTB, Floor Pricing, or First Look.
8. “**Advertiser**” shall mean anyone who buys online Ad Inventory on a Publisher’s webpage to serve ads to those internet users who visit a Publisher’s webpage.
9. “**Advertiser Ad Server**” shall mean those tools used by Advertisers to manage their ad campaigns by directing how Advertisers store and deliver advertisements and tracking where ads are served, such as Your DoubleClick Campaign Manager (now known as Campaign Manager).
10. “**AMP Page**” shall mean a webpage designed and served as an accelerated mobile page, as described on the domain <https://amp.dev/>.
11. “**API**” shall mean application programming interface.
12. “**Attribution Model**” shall mean the rule or rules that determine how a purchase is credited or attributed to an ad.

13. “**Authorized Buyer**” shall mean a buyer participating in Your Authorized Buyers program (*see* <https://support.google.com/authorizedbuyers/answer/9070822> (last visited June 22, 2020); <https://www.google.com/doubleclick/adxbuyer/guidelines/> (last visited June 22, 2020)).
14. “**Behavioral Data**” shall mean all types of data collected regarding user preferences, statuses, and behaviors, regardless of whether acquired directly from the user (“**First-Party Data**”) or indirectly (“**Second-Party Data**” or “**Third-Party Data**”). Behavioral Data includes, but is not limited to, demographic information, device identification, browser identification, location information, browsing history, and session length.
15. “**Bid Request**” shall mean an electronic message containing (directly or indirectly) various pieces of information about the context of a piece of Ad Inventory (page content, URL, etc.) and the user (e.g., cookie data) that can be used to create a bid to display advertising content in one or more specified locations within a web page, irrespective of whether the message or its contents has been modified for transmission to an Advertiser.
16. “**Bid Response**” shall mean an electronic message generated in response to a Bid Request containing (directly or indirectly) a bid price and various pieces of information concerning proposed advertising content to be displayed in one or more specified locations identified in the corresponding Bid Request.
17. “**Client-Side Header Bidding**” shall mean that form of Header Bidding where the user’s browser transmits one or more Bid Requests and receives one or more Bid Responses.
18. “**Clone**” shall mean an exact copy of a document, Source Code Repository, or wiki including all commits, comments, versions, and revision history, if any. (*See* <https://help.github.com/en/github/getting-started-with-github/github-glossary#clone> (last viewed June 22, 2020)). Please note the instruction above, which requires any responsive dynamic material (e.g., a wiki or repository) to be produced in electronic format as a Clone of such material, including but not limited to, all comments, versions, commits, revision history, and material from any associated information tracking systems, including, but not limited to, feature requests, bug reports, issues, sprints, tasks, user stories, project management, and trouble tickets.
19. “**Cost-Per-Click**” or “**CPC**” shall mean that method of payment by which Advertisers pay a certain amount of money each time a user clicks on ad space filled by that Advertiser.
20. “**Cost-Per-Mille**” or “**CPM**” shall mean that method of payment by which Advertisers pay a certain amount of money for every thousand Ad Impressions that occur in a given ad space.
21. “**Demand-Side Products**” shall mean Your products that facilitate the purchase of Ad Inventory, including but not limited to, AdWords, Google Ads, DoubleClick for Advertisers, Google Display Network, DoubleClick Campaign Manager, Google Campaign Manager, DoubleClick Bid Manager, DV360, Google Analytics, Analytics 360, and Google Audience Center.
22. “**Demand Side Platform**” or “**DSP**” shall mean those entities that act on behalf of Advertisers to purchase Ad Inventory by connecting Advertisers to Ad Exchanges or SSPs or help Advertisers find the most effective Ad Impressions, including but not limited to, Display & Video 360 (DV360), DoubleClick Bid Manager, DataXu, MediaMath, AOL, Turn, the Trade Desk, Amobee, Rocket Fuel, Audience Science, AppNexus, Xandr, Adform, and Amazon DSP, and including all predecessors and successors bearing the same or similar functionality.

23. **“Direct Sales”** shall mean the portion of Ad Inventory that is sold directly by a Publisher, including programmatic guaranteed line items managed by the Publisher.
24. **“Display Advertising Market”** shall mean that portion of the online advertising market that displays visual-based advertisements on the website of a Publisher.
25. **“Document”** shall mean the original and all non-identical copies (whether different from the original because of notes, underlining, attachments, or otherwise), all computer files, and any written, printed, or recorded material of every kind in the possession, custody, or control of You. The term “computer files” includes information stored in or accessible through computers, portable computers, handheld devices, workstations, minicomputers, mainframes, servers, backup disks and tapes, archive disks and tapes, and other forms of offline storage, whether on or off the premises of Your place of business. This definition covers electronic mail messages (“e-mail”), wikis, slack messages, text messages, social media messages, and other electronic Documents in Your possession, custody, or control.
26. **“DoubleClick for Publishers”** or **“DFP”** shall mean Your Ad Server used to manage Publisher Ad Inventory before it was renamed along with AdX as Google Ad Manger, including any successor or predecessor product bearing the same or similar functionality.
27. **“Dynamic Allocation”** shall mean that feature of DFP introduced in 2014 that changed the procedure for how a winning bid was selected on DFP.
28. **“Enhanced Dynamic Allocation”** or **“EDA”** shall mean that feature of DFP that allowed AdX to use Dynamic Allocation on Premium Inventory and Direct Sales of Publishers.
29. **“Extended Time Period”** shall mean that period of time from January 1, 2010 to the present.
30. **“First Look”** shall mean the feature of Google Ad Manager described on <https://support.google.com/admanager/topic/9242064> (last viewed June 22, 2020) (*see also* <https://support.google.com/authorizedbuyers/answer/6142666#first-look> (last viewed June 22, 2020)), including any equivalent features in other Google AdTech Products.
31. **“Floor Pricing”** shall mean any system, procedure, or rules used to implement, determine, or define the floor price in an Ad Auction (first-price and/or second-price), including but not limited to the Unified Floor Pricing Rule described on <https://support.google.com/admanager/answer/9298008?hl=en> (last viewed June 22, 2020).
32. **“Google Ad Manager”** or **“GAM”** shall mean the product You refer to as to as Google Ad Manager, which includes Your Ad Server previously known as DFP, as well as Your Ad Exchange previously known as AdX, as well as any successor or predecessor product bearing the same or similar functionality.
33. **“Google Ad Exchange”** or **“AdX”** shall mean Your Ad Exchange before it was renamed Google Ad Manager, as well as the current Ad Exchange functionality of Google Ad Manager, and includes any successor or predecessor product bearing the same or similar functionality.
34. **“Google Ads”** or **“AdWords”** shall mean Your Demand Side Platform that allows Advertisers to buy display space on the Google Display Network and/or search advertising, and includes any successor or predecessor product bearing the same or similar functionality.

35. **“Google Cloud”** shall mean any cloud computing services provided by You under the brand Google Cloud, including any successor or predecessor product or service bearing the same or similar functionality. (See <https://cloud.google.com/> (last viewed June 22, 2020))
36. **“Google Display & Video 360”** or **“DV360”** shall mean the advertising product for managing the purchasing of Ad Inventory for Advertisers which you currently market under the name DV360, and shall include any successor or predecessor products bearing the same or similar functionality, including DoubleClick Campaign Manager, Google Audience Center, DoubleClick Studio, and DoubleClick Bid Manger.
37. **“Google Group”** shall have the meaning of the term as used on the webpage <https://support.google.com/a/answer/33329> (last viewed June 22, 2020), including e-mail distribution lists, collaborative inboxes, and Q&A forums. The term “Google Group” shall include any computer account that can be assigned or has been assigned access rights for a computer resource; has been assigned an e-mail address; and/or can serve as a proxy or an alias for a collection of one or more other computer accounts.
38. **“Google Publisher Tag”** shall have the same meaning as found at <https://developers.google.com/doubleclick-gpt/> (last viewed June 22, 2020).
39. **“Header Bidding”** shall mean that form of Ad Auction where Ad Exchanges and/or SSPs are invited to submit bids for an Ad Impression before an Ad Request is sent to the Publisher Ad Server.
40. **“Identify”** with respect to a Document means to give, to the extent known, the type of Document, the general subject matter, the date of the Document, and the author, addressees, and recipients of the Document.
41. **“Identify”** with respect to a Person means to give, to the extent known, the Person’s full name, title, and when referring to a natural Person, additionally, the present or last known place of employment. Once a Person has been first identified in accordance with this definition, only the name of that Person need be listed in response to subsequent discovery requesting the identity of that Person.
42. **“Last Look”** shall mean any ability for You to bid on Ad Inventory after all other bids have been submitted and to know the amount of the bid that You need to beat in order to win the Ad Auction.
43. **“Last Touch Attribution”** shall mean those types of Attribution Models whereby credit for a consumer’s purchase is assigned based on the consumer’s last point of contact.
44. **“Open Bidding”** or **“Exchange Bidding”** shall mean that feature of DFP which enables Publishers using DFP to connect to demand from third-party Ad Exchanges to AdX over a server-to-server connection, allowing multiple Ad Exchanges to submit bids simultaneously. This definition also includes any successor or predecessor AdTech Auction Mechanics bearing the same or similar functionality,
45. **“Open Bidding Partner”** or **“Exchange Bidding Partner”** or **“Yield Partner”** shall mean any Ad Exchange, SSP, Advertiser, or other buyer, who is configured to and authorized to interface with Your Real-Time Bidding infrastructure to receive Bid Request messages and to submit corresponding Bid Response messages. (See <https://developers.google.com/authorized-buyers/rtb/>

- [open-bidding#receive-bid-requests-with-bidrequest](#) (last viewed June 22, 2020); <https://support.google.com/admanager/answer/7128453> (last viewed June 22, 2020)).
46. “**Optimized Competition**” shall mean the feature of Google Ad Manager described on <https://support.google.com/admanager/answer/7422526?hl=en> (last viewed June 22, 2020), including any equivalent or similar functionality in other Google AdTech Products.
 47. “**Original TX CID**” shall mean the CID issued to You by the OAG on or about September 9, 2019.
 48. “**Person**” is defined as set forth in TEX. BUS. & COM. CODE § 15.03(3), and includes any natural person, corporate entity, partnership, association, joint venture, government entity, or trust.
 49. “**Publisher**” shall mean anyone who serves content on the internet that is monetized by selling Ad Inventory to Advertisers.
 50. “**Publisher Ad Servers**” shall mean those tools used by Publishers to determine how Ad Inventory is filled, such as DFP, Google Ad Manager, OpenX, FreeWheel, or AdZerk, or any predecessors or successors bearing the same or similar functionality.
 51. “**Real-Time Bidding**” or “**RTB**” shall mean that process by which Advertisers submit bids for Ad Impressions in real-time.
 52. “**Relating to**” shall mean in whole or in part constituting, containing, concerning, embodying, reflecting, discussing, describing, analyzing, identifying, stating, referring to, dealing with, or in any way pertaining to.
 53. “**RTC**” or “**Realtime Config**” shall mean that feature of AMP that enables Publishers to call up to five other servers for each piece of Ad Inventory (See <https://github.com/ampproject/amphtml/blob/master/extensions/amp-a4a/rtc-documentation.md> (last viewed June 22, 2020)).
 54. “**Source Code**” shall mean human-readable instructions written in a language that can be executed by a computer. The term “Source Code” includes instructions that can be understood by an interpreter as well as instructions that must first be compiled or assembled prior to execution by a computer. The term “Source Code” further includes any associated files, including but not limited to comments, read me files, and change logs, without regard to whether these files can be executed.
 55. “**Source Code Repository**” shall mean a file archive, web hosting facility, or platform for the storage, development, and version control of Source Code, including associated documentation, web pages, and other works. This term includes, but is not limited to GitHub, SVN, Google Code, and SourceForge. This term also includes all associated branches, forks, and submodules of each said repository.
 56. “**Supply Side Platforms**” or “**SSP**” shall mean those entities that organize demand for Ad Inventory and connect Publishers to Ad Exchanges to sell Ad Inventory, including those that allow Publishers to connect to DSPs, such as AdX, AppNexus, Xandr, PubMatic, Rubicon Project, OpenX, One by AOL, and Oath, or any predecessors or successors bearing the same or similar functionality.
 57. “**T-50 Advertisers**” shall mean those top fifty Advertisers identified in response to Original TX CID interrogatory number 123.

58. **“T-50 Publishers”** shall mean those top fifty Publishers identified in response to Original TX CID interrogatory number 124.
59. **“Unified Auction”** shall mean that feature of Open Bidding which allows Open Bidding Partners, DSPs, Header Bidding winners, and Direct Sales to compete in a simultaneous first-price Ad Auction.
60. **“You”, “Your”, “Alphabet”, or “Google”** shall mean Alphabet Inc., its past and present officers, employees, agents and representatives, parents and predecessors, divisions, subsidiaries, affiliates, partnerships and joint ventures. The terms “subsidiary”, “affiliate”, and “joint venture” refer to any firm in which there is total or partial ownership of twenty-five percent or more or total or partial control between the company and any other Person or entity.

INTERROGATORIES

AdTech Products and Information

1. Identify all Source Code Repositories relating to each of Your past, present, and proposed AdTech Products, including a detailed description of the purpose and function of each.
2. List the name and provide a brief description of each of Your AdTech Products over the Extended Time Period; for each such product, list any pre-release or internal code names or code words by which it has been known, its status (e.g., in use, retired, or renamed), all prior changes in status (including the date of any change in status; e.g., launch date, rebranding date), and any successor or predecessor product bearing the same or similar functionality (in whole or in part).
3. Identify all software tools (both internally developed and purchased or licensed from a third party) You use to manage the development of Your AdTech products.
4. Identify and describe in detail all categories or types of information which You:
 - a. receive from within an Ad Request, including all Behavioral Data associated with the viewer of a webpage and all contextual information concerning the content of the web page or the publisher of the web page (see <https://developers.google.com/DoubleClick-gpt/guides/get-started> (last viewed June 22, 2020));
 - b. transmit to any non-Google Ad Exchange or DSP upon Your receipt of an Ad Request; Your response to this sub-part should also identify any way in which such information differs from the information You receive from within an Ad Request;
 - c. transmit to any Authorized Buyer or Open Bidding Partner upon Your receipt of an Ad Request; Your response to this sub-part should also delineate any way in which such information differs from the information You receive from within an Ad Request;
 - d. access or retrieve as a result of or in anticipation of Your receipt of any information from within an Ad Request; Your response to this sub-part should also include all of Your reasons for accessing or retrieving such information, as well as the source(s) of such information; and
 - e. store, retain, or utilize with respect to Your receipt of an Ad Request; Your response to this sub-part should also include all of Your reasons for storing or retaining such information, as well as the source(s) of such information.
5. Identify and describe in detail any advantages to any of Your AdTech Products arising from Your access to, accumulation of, or use of Behavioral Data.
6. Identify and describe any advantages to any of Your AdTech Products arising from Your maintaining information that relates to past bidding behavior of bidders into an Ad Auction You conduct, including, but not limited to, Exchange Bidding and Open Bidding.
7. Explain how You (including but not limited to GAM, AdX, DFP, AdSense, Google Ads, or other Google products and services) use the data You collect about Publishers' websites and profiles of their users. For example, but without limitation, this request pertains to audience profiles for the Publisher's audience, reach, engagement, Publisher profiles, Ad Inventory assessments or evaluations or ratings, Publisher or inventory quality scores, ratings, user or audience

demographics, affinities, or other segmentation information or evaluations that You create or maintain about the website users.

AdTech Auction Mechanics

8. List the name and provide a brief description of each of Your AdTech Auction Mechanics over the Extended Time Period; for each such auction mechanic, list any pre-release or internal code names or code words by which it has been known, its status (e.g., in use, retired, or renamed), all prior changes in status (including the date of any change in status; e.g., launch date, rebranding date), and any successor or predecessor auction mechanic bearing the same or similar functionality (in whole or in part).
9. List and describe in detail each feature change to GAM, DFP, and AdX during the Extended Time Period, including but not limited to changes to reservations, line item types, line item priorities, any changes involving how line items compete with one another, and any changes involving how other factors beyond line item types and priorities affect ad selection.
10. Describe in detail how guaranteed line items and remnant line items affect the bidding price AdX submits to DFP or GAM or how they otherwise influence the auction process. As part of your response, describe how this has changed, if at all, throughout the Extended Time Period.
11. The time period applicable to this interrogatory is the Extended Time Period. List the specifications and descriptions of the data transferred or communicated between:
 - a. GAM, DFP, and AdX under Dynamic Allocation and Enhanced Dynamic Allocation; and
 - b. GAM or DFP and non-Google Ad Exchanges.
12. Describe in detail the extent, if any, to which You have developed or used any sort of software or algorithm to predict present or future real-time bids from any non-Google Ad Exchange or DSP.
13. Identify and describe in detail all categories or types of information which You:
 - a. use to conduct an Ad Auction to determine the winning bid amongst the bids received to display an ad, including the source(s) of such information;
 - b. provide to the submitter of a bid regarding the conduct, details, and results of an Ad Auction;
 - c. provide to the Publisher of the web page corresponding to an Ad Request regarding the conduct, details, and results of an Ad Auction; and
 - d. use to dynamically alter the conditions or circumstances of an Ad Auction, including but not limited to, alterations of bid floors, bid weights, and bid time outs.
14. Explain how You convert a winning bid from a second-price AdX or GAM auction to compete in a first-price auction such as Open Bidding.
15. Identify any restrictions on a Publisher's use of non-Google Ad Exchanges or SSPs when using DFP or GAM to connect to advertising demand, and explain Your technical or business justifications for each. As part of Your explanation, describe any circumstances under which a Publisher is allowed to serve an ad using DFP or GAM without allowing one of Your Demand-Side Products to bid on that ad inventory.

16. Explain Your business rationale for Your decision to provide “the minimum bid price to win after the auction closes” (see <https://www.blog.google/products/admanager/rolling-out-first-price-auctions-google-ad-manager-partners/> (last viewed June 22, 2020)) and, if You do not provide such information to those who bid on an Ad Auction via Header Bidding, state Your business rationale for why.
17. Identify all Authorized Buyers and Open Bidding Partners with whom you share information relating to the conduct of an Ad Auction (including the number of and content of competing bids). As part of Your response, identify any other parties with whom you share the same or similar information.
18. Explain Your business rationale for Your decision(s) to share information relating to Ad Auctions with the parties You identified in response to the foregoing Interrogatory. As part of your response, identify and explain any incentive You create or intend to create by such sharing.
19. To the extent You do not share information relating to the conduct of an Ad Auction (including the number of and content of competing bids) with parties who are not Open Bidding Partners or Authorized Buyers, explain Your business rationale for Your decision(s).

Relationships between Products

20. List, for any time during the Extended Time Period, any differences in data access, API access, or feature availability between:
 - a. DFP or GAM when interfacing with AdX versus non-Google Publisher Ad Servers when interfacing with AdX;
 - b. DFP or GAM when interfacing with AdX versus non-Google SSPs when interfacing with AdX;
 - c. AdX when interfacing with DFP or GAM versus non-Google Ad Exchanges when interfacing with DFP;
 - d. AdX or DFP or GAM when interfacing with AdSense versus non-Google Ad Exchanges when interfacing with AdSense;
 - e. Google Ads when interfacing with AdX, DFP, or GAM versus non-Google DSPs when interfacing with AdX, DFP, or GAM;
 - f. AdX, DFP, or GAM when interfacing with Google Ads versus non-Google Ad Exchanges when with Google Ads;
 - g. DV360 when interfacing with AdX, DFP, or GAM versus non-Google DSPs when interfacing with AdX, DFP, or GAM;
 - h. AdX, DFP, or GAM when interfacing with DV360 versus non-Google Ad Exchanges when interfacing with DV360;
 - i. SA360 when interfacing with DFP or GAM versus SA360 interfacing with non-Google Publisher Ad Servers;
 - j. Google Ads when interfacing with AdSense versus non-Google DSPs when interfacing with AdSense;

- k. Google Marketing Platform (formerly DoubleClick Digital Marketing and Google Analytics 360 Suite) when interfacing with AdX, DFP, or GAM versus non-Google advertising analytics tools when interfacing with AdX, DFP, or GAM;
- l. Google Ads when interfacing with Chrome versus non-Google DSPs when interfacing with Chrome; and
- m. AdX, DFP, or GAM when interfacing with Chrome versus non-Google Ad Exchanges or Publisher Ad Servers when interfacing with Chrome.

Google Ad Manager

- 21. Describe in detail all steps You have taken and any steps You plan to take (with timelines) to integrate (or otherwise co-market) Your products formerly known as DFP and AdX together into Your product now known as Google Ad Manager, including all steps relating to any technical, organizational, operational, marketing, and personnel changes.
- 22. Identify any advantages to You or to Publishers from integrating the functionality of DFP and AdX.
- 23. Identify all possible commission and fee structures (including any revenue sharing) that AdX or GAM charge for hosting an Ad Auction, and how You determine which commission and fee structures to apply.
- 24. With respect to Your decision that Publishers “will not be able to join the Bid Data Transfer file with other Ad Manager Data Transfer files” (*see* <https://www.blog.google/products/admanager/rolling-out-first-price-auctions-google-ad-manager-partners/> (last viewed June 22, 2020)):
 - a. list and describe the categories and types of information You provided to Publishers as part of any Bid Data Transfer or other Ad Manager Data Transfer files before this change;
 - b. list and describe the categories and types of information You provide to Publishers as part of any Bid Data Transfer or other Ad Manager Data Transfer files after this change;
 - c. explain Your business rationale for this change; and
 - d. state the extent to which this change impacts Publishers’ ability to link or reconcile bidding-level data (i.e., including how much each bidder bids) with individual-impression data (i.e., including the price at which the Ad Impression was sold), including the extent to which the new Bid Data Transfer files You provide include impression-level data or data relating to those participating in an Ad Auction via header bidding, as well as the existence or non-existence of common fields between data sets (e.g., KeyPart or TimeUsec2) to enable linking bidding-level data to impression-level data.
- 25. Have You made, considered making, or considered whether to make, any offer, formal or informal, to sell (or otherwise divest) or received any offer, formal or informal, to purchase (or otherwise acquire) any portion of Your business relating to GAM? If so, describe in detail all of Your internal considerations and any related negotiations, including identification of all potential purchasers, the portion(s) of Your business at issue, the substance and status of Your consideration or negotiations, and all relevant dates (e.g., date of offer to buy or sell, date on which transaction was abandoned, etc.).

Header Bidding and Open Bidding

26. Identify all Persons who work (or have worked) on or with any of Your internal operations groups, employee groups, investigative teams, or task forces which have studied or examined (or are studying or examining) the effects of Header Bidding on any aspect Your business.
27. Identify any reason why You might throttle the number or rate of queries made by any of Your AdTech Products to any third-party Ad Exchange.
28. Describe the function of
29. Identify each internal team or workgroup You have ever created, in whole or in part, for the purpose of (or which You have otherwise tasked with) studying the business and/or competitive effects of Header Bidding, including identification of all past and current members of each such team or workgroup and each such person's role or function within such team or workgroup.
30. Identify and explain each reason You are aware of for why Publishers and SSPs use both Header Bidding and Open Bidding in combination to sell Ad Inventory.
31. Identify the key performance metrics You use or have used in evaluating Open Bidding, and explain the results or conclusions generated from all simulations or experiments related to Open Bidding, including but not limited to
32. Identify the key performance metrics that You use or have used to compare the performance of Open Bidding to Header Bidding. To the extent you do not consider yield or cookie match rate to be key performance metrics, please explain why not.
33. Describe any sales strategy, marketing effort, leverage used, or any other efforts undertaken by You to solicit:
 - a. any non-Google Ad Exchanges to become Open Bidding Partners or to otherwise increase their use of Open Bidding; and
 - b. Publishers to participate in Open Bidding.
34. Describe the characteristics of Ad Exchanges relevant to Your evaluations of whether to allow them to become Open Bidding Partners, including explanation of any characteristics which have caused or would cause You to reject them as an Open Bidding Partner.
35. Explain Your rationale(s) and justification(s) (business or otherwise) for, and the timing of, Your purported removal of Last Look.
36. Describe the results of, or conclusions drawn from, any experiment, analysis, or simulation You conducted or are aware of which relates to the impact of Open Bidding on Header Bidding, or vice versa, including, but not limited to, any impact on Publisher revenue from the adoption of Header Bidding, the win rate of Header Bidding winners in Open Bidding or against AdX, and the volume of inventory sold using Header Bidding solutions.
37. Describe the conditions under which any of Your AdTech Products have or will bid into the in-house Ad Auctions of any Publisher, including identification of the criteria You evaluate or have

- evaluated in making such decisions and the extent to which You consider the Publisher's participation in Open Bidding or use of Header Bidding.
38. Describe any benefit or advantage You have received or expect to receive as a result of
 39. Describe any benefit or advantage You have received or expect to receive as a result of the
 40. Explain Your relationship with Facebook, including all of the ways in which Facebook interacts with any of Your AdTech Products.
 41. Explain the purpose of Your policies concerning multiple Ad Requests for a single ad slot, identify any changes You have made to such policies (with an indication of the date You made each such change), and identify any changes You intend to make to such policies in the future (with an indication of the date You intend to make each such change).
 42. Describe any increased visibility into Advertiser creatives from different demand sources that You gain when an ad is sold through Open Bidding as compared to being sold through a third-party Ad Exchange or SSP, or through traditional ad intermediation, and explain how You use or have used such information.
 43. State and explain Your rationale(s) for not allowing non-Google DSPs to bid directly into Open Bidding, and state the extent to which You have any plans to change this policy in the future.
 44. Describe how You calculate or determine Your revenue share when a bidder from a non-Google Ad Exchange wins an Ad Auction through Open Bidding.
 45. Identify the amount of revenue that You receive when a bidder from a non-Google Ad Exchange wins an Ad Auction through Open Bidding. As part of Your answer, include information sufficient to identify the mean revenue per transaction, median revenue per transaction, average difference between high and low amounts, and the amount of that revenue as a percentage of your overall ad intermediation revenue. Please also break this information down by the product type or revenue source.
 46. State and describe how, if at all, Your revenue share(s) differ between Open Bidding Partners and other demand sources. Your answer should include revenue share comparisons of Authorized Buyers and Google DSPs (DV360 or Google Ads).
 47. Identify any fees You charge to Publishers, SSPs, or Ad Exchanges due to the complexity of their line item configuration, state Your justification(s) for doing so, and describe the criteria You use to determine whether to charge such fees. To the extent that these fees vary based on the actual or suspected use of Header Bidding, identify the variations and Your justifications for doing so.
 48. Identify any fees You charge to a Publisher due to the complexity of their data reports, state Your justification(s) for doing so, and describe the criteria You use to determine whether to charge such fees.
 49. Identify any fees You charge to Publishers, SSPs, Advertisers, DSPs, or Ad Exchange when a Header Bidding bidder wins an auction to serve an ad that is ultimately served through DFP or GAM. Further identify how You calculate any such fees, state whether You ever adjust or waive such fees (and if so, the conditions under which you do), and state whether You charge the same

fees when the winning bid comes from the AdX or GAM auction (or is they are also modified or waived).

50. Identify any fees You charge to a Publisher who exceeds the number of line items or number of rules allowed by DFP or GAM.

Unified Auction and Unified Pricing Rules

51. With respect to Your formulation and/or placing of any bid within Unified Auction, describe in detail the extent, if any, to which You currently or have ever:
- a. taken into account the current bid of any other bidder(s) participating in the Ad Auction, including those participating via Header Bidding;
 - b. taken into account the past bidding behavior of any other bidder(s) participating in the Ad Auction, including those participating via Header Bidding; and
 - c. delayed Your placement of a bid in order to account for any real-time information; Your answer should include a description of each category or type of such real-time information.
52. Explain any process by which Publishers and Advertisers can verify that Google no longer has a Last Look advantage from Dynamic Allocation in Open Bidding or Unified Auction. As part of Your answer, explain whether this applies equally to non-guaranteed line items and other non-guaranteed advertising sources.
53. Describe the economic rational or technical reasons for Your decision to apply any Publisher price floor to all programmatic buyers for Publishers participating in Open Bidding as part of the transition to a Unified Auction format.
54. Describe any efforts You have made to assist Publishers in comparing their Header Bidding data with the Unified Auction data reporting You provide.
55. Describe in detail how and when You utilize a dynamic price floor to automatically change the minimum sell price for ads sold through AdX. As part of Your response, identify whether or not You restrict (or have ever restricted) the ability to utilize such a feature to transactions or Publishers who are using AdX.
- 56.
- 57.
- 58.

59.

60.

Demand Side

61. Identify any commission(s) or fee(s) You charge to Advertisers who purchase Ad Inventory through Google Ads or AdWords.
62. Explain whether the AdWords or Google Ads auction that occurs prior to Unified Auction is a first-price or second-price auction. As part of Your answer, describe how the winning bid from the AdWords or Google Ads auction participates in Unified Auction.
63. Explain Your business justification(s), technical reason(s), or other rationale(s) for restricting AdWords or Google Ads Advertisers to purchasing display Ad Inventory exclusively from Google Display Network other than for remarketing purposes.
64. Describe the conditions under which and to whom You disclose log-level bid data from AdWords or Google Ads.
65. Identify any default ad campaign settings in AdWords or Google Ads that allow You to direct part of an Advertiser's ad spend to display inventory available on the Google Display Network or the Google Search Network. As part of your answer, identify the date that any such default setting was implemented.
66. Identify and describe in detail any policies or procedures that You have or have had regarding the use of Publishers' configuration data to recommend or direct that Publishers change their configurations to enable or preference Your AdTech Products.
67. Describe in detail any analysis, studies, experiments, or testing (including A/B testing or other comparative analysis) relating to the default campaign type in AdWords and/or the potential effects of any change or potential change thereto, including any analysis, studies, or testing relating to (or otherwise underlying or informing) Your decision to set the default campaign type in AdWords to include both Google Search Network and Google Display Network, and any effects such setting has had or could have on You or Publishers, Advertisers, Ad Exchanges, DFPs, or SSPs.
68. Explain how DV360, or any of its predecessor or successor products, selects the winning bid that it will submit to AdX, Open Bidding, Unified Auction, or a third-party Ad Exchange.
69. Identify any efforts, policies, or strategies to prevent any of Your Demand-Side Products from buying Ad Inventory through Header Bidding auctions. As part of Your answer, explain Your business justifications for any such decision.

70. Explain the extent to which Google Ads or DV360, or any of their predecessor or successor products, use algorithms, strategic bidding technologies, or bid shading tools to predict the bidding behavior of Advertisers or DSPs or to otherwise determine the amount they need to bid to win an Ad Auction. As part of Your answer, identify any data inputs to any strategic bidding technologies.
71. Identify and describe in detail (including a quotation of the relevant text of) any sort of volume discount, rebate provision, or minimum purchase requirement which You have offered to any Advertiser, Publisher, SSP, DSP, or Ad Exchange, and for each such discount, provision, or requirement, identify every Advertiser, Publisher, SSP, DSP, or Ad Exchange who has accepted or rejected such discount, provision, or requirement.
72. Identify and describe in detail all categories or types of Behavioral Data which You obtain via any of Your products (including, e.g., search, Chrome, maps, YouTube, GAM, etc.) and which You also utilize in any way for targeting ads to users, reporting, and/or attribution on DV360 or Google Ads. For each such category or type of Behavioral Data, state whether, and the extent to which, You make such data available (in the same format) to any non-Google DSP; to the extent You do not make such data available (in the same format), state all of Your reason(s).
73. Identify all possible fees that You charge (or have charged) any DSPs or Advertisers who purchase Ad Inventory through any of Your Demand-Side Products.

Data Analytics and Verification

74. Describe in detail all of Your reasons for instituting private APIs in any of Your AdTech Products or AdTech Auction Mechanics, or for otherwise limiting third-party data usage or portability.
75. Describe in detail all categories and types of information accessible through Your APIs by Advertisers with respect to their advertising campaigns.
76. With respect to each category and type of information You identified in response to the preceding Interrogatory, describe in detail the extent to which, and manner by which, Advertisers can independently verify such information.
77. Describe in detail Your reasons, technical or otherwise, for prohibiting Advertisers from using third-party data providers to create target audiences.
78. Describe in detail the manner by which You identify fraudulent Ad Impressions.
79. Describe in detail all Attribution Models You make available to any Advertisers.
80. Describe in detail Your process and methodology for determining how a sales credit may be assigned to an advertisement shown in response to a user-generated search query.
81. Describe in detail Your process and methodology for determining how a sales credit may be attributed to a display advertisement.
82. Explain how “KeyPart” and “TimeUse2” allows Publishers to link impression-level data with bidding data from AdX and Open Bidding. As part of Your answer, please explain any benefit from linking impression-level data with bidding data.
83. Explain the business rationale for Your decision to introduce a new type of data transfer file containing bidding data from Authorized Buyers and Open Bidding, but not impression level-data

or Header Bidding data. As part of Your answer, identify any alternate means by which Publishers can link their bidding data with impression-level data.

84. Explain the process by which Publishers can link Your data transfer file with performance data from Header Bidding auctions.
85. To the extent You contend that Your restrictions regarding Publishers' access to user data (or otherwise preventing Publishers from matching user data with bidding data) are necessary in order for You to comply with EU General Data Protection Regulation 2016/679 or other privacy law, please provide an explanation for such contention.

Revenue/Pricing/Profits

86. List and describe in detail each category of revenue You obtain when one or more of Your products or services is used to effectuate an Advertiser's purchase of Ad Inventory, including by way of example, take rate, ad-serving fees, service fees (for audience targeting or otherwise), and/or revenue shares. For each such category, list the general source of the revenue (e.g., publisher, advertiser, etc.) and describe your pricing structure (e.g., the CPC or CPM, percentage of revenue, etc.).
87. Explain the process whereby ad spend from Advertisers using Google Ads or DV360 is allocated between You and Google Network Member properties, and explain the criteria you use for making such allocation; provide separate answers for Google Ads and DV360.
88. Describe in detail the methodology by which You convert CPC bids placed via any of your Demand-Side Products to the CPM bids used in Unified Auction.
89. For the Extended Time period, separately list the revenue for each quarter for each of Your AdTech Products.
90. List the bates number(s) of all material you produced in response to document request number 97 in the Original TX CID ("Produce Documents sufficient to show Your share of Programmatic Advertising revenue (i.e. the total amount paid by Advertisers in respect of ads using your services) in comparison to the portion of Programmatic Advertising revenue received by Publishers for the Extended Time Period.").

Accelerated Mobile Pages (AMP)

91. Identify all efforts, technical or otherwise, by any third-party Ad Exchange or SSP to increase the number of demand sources able to bid on Ad Inventory on AMP Pages, including any efforts based on traditional ad mediation techniques, Header Bidding solutions, or by any other means.
92. Explain the benefits, if any, that You receive by implementing timeout restrictions on Ad Requests for AMP Pages, including any effect of shorter or longer timeout restrictions, as well as any other variables You consider with respect to modifying or implementing longer or shorter timeout restrictions. As part of Your answer, please explain how such timeout restrictions are implemented differently when serving ads on non-AMP mobile pages or non-AMP desktop pages.
93. Identify all third-party vendors of ad analytics services who You permit to interoperate with any of Your AdTech Products or who otherwise are able to access Your data regarding ad performance related to an AMP Page.

94. Identify and explain Your assessment of all of the factors contributing to (or causes of) lower monetization of Publisher Ad Inventory on AMP Pages compared to their non-AMP Page counterpart on mobile.
95. Identify and explain Your assessment of all of the factors contributing to (and causes of) lower monetization of Publisher Ad Inventory on AMP Pages compared to their non-AMP Page counterpart on desktop.
96. Describe the process by which You have given or currently give preference to bids to serve AMP-compliant ads over bids to serve non-AMP-compliant ads for Ad Inventory on AMP Pages through AdX or GAM, including explanation of the criteria You use for determining when an AMP-compliant ad is given preference and when it is not.
97. Describe the process by which You have given or currently give preference to serving AMP-compliant ads over serving non-AMP-compliant ads for Ad Inventory on AMP Pages through AdX or GAM, including explanation of the criteria You use for determining when an AMP-compliant ad is given preference and when it is not.
98. Describe any technical obstacles to implementing RTC on AMP Pages to support Client-Side Header Bidding.
99. Explain Your economic rationale for designing RTC on AMP Pages so that it would not support Client-Side Header Bidding.
100. Explain Your justifications (business, technical, or otherwise) for deprecating remote.html in AMP.

YouTube

101. Explain all of Your business justification(s) for removing the ability of non-Google DSPs to bid on YouTube Ad Inventory in January 2016.¹
102. Explain all of Your business justification(s) for not making YouTube TrueView Ad Inventory available for purchase via non-Google DSPs. The time period applicable to this interrogatory is the Extended Time Period.
103. Explain all of Your business justification(s) for not making YouTube mobile Ad Inventory available for purchase via non-Google DSPs. The time period applicable to this interrogatory is the Extended Time Period.
104. State the percentage of total YouTube Ad Inventory available for purchase via non-Google DSPs prior to January 2016. As part of Your answer, state the manner in which you determined this percentage. The time period applicable to this interrogatory is the Extended Time Period.
105. Identify all DSPs that have placed a bid for an Ad Impression on YouTube Ad Inventory through AdX during the Extended Time Period.

¹

106. Describe the means by which third-party DSPs were permitted to bid on YouTube Ad Inventory prior to January 2016. To the extent your answer varies depending on the type of Ad Inventory (e.g., mobile, TruView, etc.), indicate as such for all such types of YouTube Ad Inventory. The time period applicable to this interrogatory is the Extended Time Period.
107. From January 2016 to the present, describe the process of how Advertisers are able to bid on YouTube Ad Inventory. As part of Your answer, describe how this process was different before January 2016.
108. Prior to January 2016, state how much quarterly revenue You generated by virtue of non-Google DSPs bidding directly into AdX for YouTube Ad Inventory. The time period applicable to this interrogatory is the Extended Time Period.
109. Prior to January 2016, state how much revenue by quarter You generated from Advertisers purchasing YouTube Ad Inventory through one or more of Your Demand-Side Products. The time period applicable to this interrogatory is the Extended Time Period.
110. For each quarter from January 2016 to the present, separately state how much revenue You generated by virtue of YouTube Ad Inventory through one or more of Your Demand-Side Products.

Chrome

111. Do You contend that the EU General Data Protection Regulation 2016/679 or any other law requires You to implement any form or degree of third-party cookie blocking on Chrome? If so, state the reasons for such contention in detail. As part of Your answer, identify each provision of law which You contend requires such conduct.
112. State how You utilize Chrome user login data for any ad targeting, attribution, or reporting purposes.
113. State whether, and the extent to which, You utilize Chrome user login data to refresh cookies or otherwise connect user behavior to any of Your AdTech Products or AdTech Auction Mechanics.
114. State whether, and the extent to which, each instance of Chrome transmits a unique identifier to You irrespective of whether the user has logged into a Google account. To the extent it does, state whether, and the extent to which, You connect, join, or otherwise associate such identifier with any of Your AdTech Products or AdTech Auction Mechanics for any purpose.

Mobile

115. Identify and describe any of Your policies, actions, or attempts to limit calls into Ad Auctions on GAM, AdX, or AdMob from any non-Google DSPs or Ad Exchanges with respect to mobile Ad Inventory.
116. State and describe the extent to which the presence of a price floor that is higher than the second price in an Ad Auction on GAM, AdX, or AdMob affects Your decision to bid on mobile Ad Inventory. As part of Your answer, describe any changes to Your bidding algorithms to account for the presence of a price floor that is higher the amount of the second price in Your Ad Auction.
117. Describe any of Your efforts to introduce real-time bidding into the market for mobile Ad Inventory. As part of Your response, explain the role that _____ played in that process and its effect on the adoption of Header Bidding for mobile Ad Inventory.

118. Identify and describe any restrictions You have instituted to restrict mobile Publishers from mediating with non-Google ad networks.
119. Describe Your response to the introduction of client-side Header Bidding open RTB solutions on mobile apps, including the extent to which You have purchased Ad Inventory through this technology and, if you have, the identity of the companies You partnered with in bidding on mobile app Ad Inventory through Client-Side Header Bidding or other open RTB solutions.

Google Cloud

120. Describe in detail how cloud computing technology is used in conjunction with any of Your AdTech Products, including any relationship between Google Cloud and any of Your AdTech Products.
121. Describe in detail how any non-Google SSP, DSP, Ad Exchange, Advertiser Ad Server, or Publisher Ad Server may experience cost savings, increased revenue, technical benefits (including the extent of any reductions in latency), or operational efficiencies when using Google Cloud.
122. Describe in detail the pricing structure for Google Cloud if used by a non-Google SSP, DSP, Ad Exchange, Advertiser Ad Server, or Publisher Ad Server, including a description of any discount(s) available to them (and identification of any criteria needed to qualify for such discount(s)).

Internal Communications Channels

123. Identify all Google Groups associated with (or which You otherwise use with respect to the development, maintenance, or operation of) any of Your AdTech Products or AdTech Auction Mechanics, including, but not limited to the Google Groups identified in Appendix A. For each such Google Group, describe how members are added to the Google Group (e.g., by invitation only or automatically upon request), including any limitations on the users permitted to join such Google Groups, and identify:
 - a. its name and description;
 - b. its e-mail address;
 - c. its e-mail settings (e.g., subject prefix, footer, and auto replies);
 - d. its type (e.g., e-mail list, collaborative inbox);
 - e. its defined roles (*see, e.g.,* <https://support.google.com/groups/answer/2464975> (last viewed June 22, 2020) and <https://support.google.com/a/answer/9007750> (last viewed June 22, 2020)), including but not limited to owner, manager, and member; and
 - f. for each defined role, the permissions associated with that role.
124. Identify all other non-email electronic group messaging systems, platforms, or channels, including but not limited to any slack channels, wikis, and hangouts, which You use to communicate internally in connection with (or which You otherwise use with respect to the development, maintenance, or operation of) any of Your AdTech Products or AdTech Auction Mechanics. For each such system, platform, or channel, provide a description and a list of users.

General

125. With respect to any company who provides, has provided, has developed, or is developing any AdTech Product(s), identify each such company in which You have, or have had, any ownership interest, and state the amount and nature of Your ownership interest. The time period applicable to this interrogatory is the Extended Time Period.
126. Describe any efforts You are aware of
127. For each of the following terms and phrases, identify any other terms or phrases which are synonymous or nearly synonymous, and explain in detail the meaning of each, including explanation of the each term or phrase's relationship to digital advertising generally, and to the extent applicable, each term or phrase's relationship to any of Your products, the inputs to or mechanics of any of Your products, or measurement of evaluation of any outcomes resulting from the operations of Your products:
 - a.

128. Separately list all of Your past and present employees, personnel, and/or groups in charge of decision-making, experimenting, testing, analyzing, development of, or implementation of each of the following during the Extended Time Period:
- a. AdX's auction latency requirement
 - b. Google Display Network's Fourth-Party Call restrictions;
 - c. Your policy restricting Advertisers' use of third-party data on Google Search, Gmail, and YouTube;
 - d. the decision to revoke access to Doubleclick ID log-level data;
 - e. the decision to limit or deprecate Third-party cookies in Chrome;
 - f. the decision to restrict contextual data shared via AdX with Advertisers;
 - g. the Dynamic Allocation feature change;
 - h. the feature change allowing AdX to outbid non-Google Ad Exchanges after non-Google Ad Exchanges submitted their bids;
 - i. the Enhanced Dynamic Allocation feature change;
 - j. DFP, AdX, or GAM's support for Header Bidding;
 - k. the decision to support, to limit support, or not support the option for Publishers to use Header Bidding in GAM and AdX;
 - l. the Open Bidding feature change; and
 - m. the Unified Auction feature change.
129. Separately list all of Your current employees, and the title of each, whose primary responsibilities are associated with:
- a. the Publisher Ad Server functionality of GAM (or any other functionality previously associated with DFP before its integration into GAM);
 - b. the Ad Exchange functionality of GAM (or any other functionality previously associated with AdX before its integration into GAM); and
 - c. both the Ad Exchange functionality of GAM (or any other functionality previously associated with AdX before its integration into GAM) and the Publisher Ad Server functionality of GAM (or any other functionality previously associated with DFP before its integration into GAM).
130. List search terms You used to gather documents in response to each civil investigative demand dated January 1, 2019 or later from the United States Department of Justice, including, but not limited to, Civil Investigative Demand Nos. 30092, 30120, and 30121.
131. Identify all Documents relied upon by You in formulating Your answer to each Interrogatory in this CID.

132. Identify, by bates number, each Document or range of Documents produced that correspond to each Request for Documents in this CID.

REQUESTS FOR DOCUMENTS

AdTech Products and Information

1. Produce a Clone of each Source Code Repository related to each of Your past, present, and proposed AdTech Products and AdTech Auction Mechanics.
2. Produce all Documents relating to Your development, maintenance, deployment, use, and/or operation of any past or present AdTech System, including, but not limited to, manuals, presentations, architecture diagrams, product requirement documents, data flow diagrams, programming guides, API references, protocol descriptions, interfaces, declarations, design specifications, launch reports, progress reports, status reports, onboarding materials, and/or training materials.
3. Produce a Clone of each Source Code Repository relating to processing and responding to commands, methods, and requests associated with Google Publisher Tags as described at <https://support.google.com/admanager/answer/181073> (last viewed June 22, 2020).
4. Produce a Clone of each Source Code Repository relating to Your receipt of Ad Requests, including the processing and/or storage of the contents of Ad Requests.
5. Produce a Clone of each Source Code Repository relating to or otherwise effectuating the transmission of messages, information, or data from any of Your past, present, or proposed AdTech Products to any Publisher Ad Server.
6. Produce a Clone of each Source Code Repository relating to the transmission of Bid Requests in response to the receipt of an Ad Request, including Source Code related to the creation, transmission, and storage of such Bid Requests.
7. Produce a Clone of each Source Code Repository relating to the receipt of Bid Responses in response to Bid Requests.
8. Produce a Clone of each Source Code Repository relating to conducting an Ad Auction, including Source Code related to the determination of the winner, storage of information concerning bids, storage of information concerning the winning bidder, and the transmission of information concerning the result of the Ad Auction to others (including Advertisers and Publishers).
9. Produce a Clone of each Source Code Repository relating to dynamic alterations to the conditions or circumstances of an Ad Auction, including but not limited to, Source Code relating to alterations of bid floors, bid weights, and bid time outs.
10. Produce the database configuration (including schemas, procedures, functions, and triggers) for all databases used to store data relating to Ad Requests and their corresponding bids to display ads on web pages.
11. Produce the database configuration (including schemas, procedures, functions, and triggers) for all databases accessed during the process of responding to an Ad Request, including but not limited to, databases containing Behavioral Data concerning the viewer of a web page.
12. Produce a Clone of all Source Code that implements or effectuates Dynamic Allocation, Enhanced Dynamic Allocation, Exchange Bidding, Open Bidding, Unified Auction, Optimized Competition, Floor Pricing, and/or First Look.

13. Produce all Documents addressing any advantages to You or Your AdTech Products arising from Your access to, accumulation of, or use of Behavioral Data.
14. Produce all Documents addressing any advantages to You or Your AdTech Products arising from Your access to, accumulation of, or use of information relating to past bidding behavior of bidders into an Ad Auction You conduct, including, but not limited to, Exchange Bidding and Open Bidding.
15. Produce Documents, including product roadmaps, API documentation, interface documentation, interface specification, code documentation, product architecture schematics, presentations, and other documents from the Extended Time Period that discuss, explain, or otherwise relate to the data You collect about Publishers' websites and profiles of their users. For example, but without limitation, this request pertains to audience profiles for the Publisher's audience, reach, engagement, Publisher profiles, Ad Inventory assessments or evaluations or ratings, Publisher or inventory quality scores, ratings, user or audience demographics, affinities, or other segmentation information or evaluations that You create or maintain about the website users.

AdTech Auction Mechanics

16. Produce all planning documents and communications, white papers, market analyses, competitive analyses, retrospectives, strategic plans, or other decision-making or analytical Documents relating to Your decision to provide "the minimum bid price to win after the auction closes" (*see* <https://www.blog.google/products/admanager/rolling-out-first-price-auctions-google-ad-manager-partners/>), including those relating to Your consideration of whether such information could or should be shared with those who bid on an Ad Auction via Header Bidding.
17. Produce all Documents relating to Your process of modifying a winning AdX bid from a second-price auction to compete in a subsequent first-price auction (such as in Open Bidding).
18. Produce all Documents that relate to Your decision to apply Publisher price floors to all programmatic buyers for Publishers participating in Open Bidding as part of the transition to a Unified Auction format.
19. Produce all guides, references, interfaces, specifications, diagrams, or other documentation You provide or have provided to any Open Bidding Partners regarding their interfacing with or participation in Open Bidding. (*See* <https://support.google.com/admanager/answer/7128453?hl=en> (last viewed June 22, 2020)).
20. Produce all Documents, including any Documents , evaluating, discussing, or comprising all experiments, tests, analyses, predictions, and other considerations for feature changes to GAM, DFP, and AdX during the Extended Time Period, including but not limited to Your development and implementation of:
 - a. Dynamic Allocation;
 - b. restricting non-Google Ad Exchanges' ability to access Dynamic Allocation before Dynamic Allocation became available to non-Google Ad Exchanges;
 - c. Your decision to allow AdX to outbid non-Google Ad Exchanges after they submitted their bids, as well as Your decision to discontinue this conduct;
 - d. Enhanced Dynamic Allocation;

- e. Your decision not to support the option for Publishers to use Header Bidding in GAM, DFP, and AdX;
- f. Open Bidding or Exchange Bidding;
- g. Your decision to charge a fee to Ad Exchanges who participated in Open Bidding or Exchange Bidding; and
- h. Unified Auction.

Relationships between Products

21. The time period applicable to this request is the Extended Time Period. Produce Documents, including but not limited to product roadmaps, API documentation, interface documentation, interface specification, code documentation, product architecture schematics, and presentations (i) that detail or address the specifications, API documentation, and descriptions of the data transferred or communicated between the following, and/or (ii) that detail or address the functionality and interactions between the following:
- a. DFP and AdX;
 - b. the Ad Server functionality of GAM and the Ad Auction functionality of GAM;
 - c. non-Google Publisher Ad Servers and AdX;
 - d. non-Google SSPs and AdX;
 - e. non-Google Ad Exchanges and DFP or GAM;
 - f. AdSense and AdX or DFP or GAM;
 - g. non-Google Ad Exchanges or Publisher Ad Servers and AdSense;
 - h. Google Ads and AdX or DFP or GAM;
 - i. non-Google DSPs and AdX or DFP or GAM;
 - j. non-Google Ad Exchanges and Google Ads;
 - k. non-Google Publisher Ad Servers and Google Ads;
 - l. DV360 and AdX or DFP or GAM;
 - m. non-Google Ad Exchanges and DV360;
 - n. SA360 and DFP or GAM;
 - o. non-Google Publisher Ad Servers and SA360;
 - p. AdSense and Google Ads;
 - q. non-Google DSPs and AdSense;
 - r. Google Marketing Platform (formerly DoubleClick Digital Marketing and Google Analytics 360 Suite) and AdX or DFP or GAM;

- s. non-Google Ad Exchanges and Google Marketing Platform (formerly DoubleClick Digital Marketing and Google Analytics 360 Suite);
 - t. non-Google advertising analytics tools and AdX or DFP or GAM;
 - u. Chrome and Google Ads or DV360;
 - v. non-Google DSPs and Chrome;
 - w. Chrome and AdX or DFP or GAM; and
 - x. non-Google Ad Exchanges or Publisher Ad Servers and Chrome.
22. Produce any Documents from the Extended Time Period that discuss or otherwise relate to analysis of, measurement of, or decisions related to:
- a. the availability of the Google Display Network on non-Google Ad Exchanges;
 - b. the availability of the Google Display Network on non-Google DSPs;
 - c. Google Ads' ability or inability to interface with non-Google Ad Exchanges;
 - d. YouTube's ability or inability to interface with non-Google Ad Exchanges; and
 - e. YouTube's ability or inability to interface with non-Google DSPs.

Changes to Products and Policies

23. Produce Documents from the Extended Time Period containing or discussing any measurement, analysis, or consideration relating to any of the following:
- a. considered or actual changes to user profiles, super profiles, and other ad targeting criteria used;
 - b. considered or actual changes to conventions or protocols for data sharing with Advertisers and Publishers, including bid data transfer files, and results, output, or impressions data;
 - c. considered or actual changes to the interoperability of Your AdTech Products with any non-Google AdTech Products;
 - d. considered or actual changes to the configuration options available to Publishers in GAM, DFP or AdX;
 - e. considered or actual changes to AdX's auction latency requirements;
 - f. Google Display Network's Fourth-Party Call restrictions (*see* <https://support.google.com/adspolicy/answer/94230?hl=en> (last viewed June 22, 2020));
 - g. considered or actual changes to Google's policy restricting Advertisers' use of third-party data on Google Search, Gmail, and YouTube;
 - h. Your decision to not provide access to DoubleClick ID log-level data;
 - i. Chrome's treatment of or policies toward Third-Party cookies;
 - j. Your policies or conduct in sharing contextual user data (such as the categories of websites visited by users) via AdX or GAM with Advertisers.

Ad Auction Results

24. Produce data sufficient to show, separately for Google Ads and DV360, on a monthly basis for the period starting January 2016 and until September 2019, the number of Ad Impressions (as an absolute number and as a percentage of the overall impressions made available on AdX or GAM) that Google Ads or DV360 won slightly above the bid submitted from a Header Bidding demand partner, whereby such bid from the Header Bidding demand partner would have otherwise won the impression (the “winning header bidding bid”). For the purposes of this request, “slightly above” means that the difference between the price that Google Ads or DV360 paid and the winning Header Bidding bid does not exceed \$0.10 CPM.
25. Produce data sufficient to show, separately for Google Ads and DV360, on a monthly basis for the period starting October 2019 and until the present on the number of impressions (as an absolute number and as a percentage of the total number of impressions available in the Unified Auction) that Google Ads or DV360 won slightly above the floor price. For the purposes of this request, “slightly above” means that the difference between the price Google Ads or DV360 paid and the floor price does not exceed \$0.10 CPM.

Google Ad Manager

26. Produce all Documents, including any tests, experiments, or simulations, and including any Documents _____, relating to the steps You have taken, and any steps You plan to take, to integrate (or otherwise co-market) Your products formerly known as DFP and AdX together into Your product now known as Google Ad Manager, including all steps relating to any technical, organizational, and personnel changes.
27. Produce all Documents that relate to changing the fees or commissions charged by AdX for conducting an auction of Ad Inventory.
28. Produce all contracts, policies, terms of use, requirements, or other agreements between You and any Open Bidding Partner relating to Open Bidding.
29. Produce all Documents, including any Documents _____, relating to any experiment, analysis, or simulation You have conducted which relate to _____.
30. To the extent you answered Interrogatory 25 above in the affirmative, produce all Documents relating to any such considerations, offer(s), and negotiations, including all related internal and external communications.

Header Bidding and Open Bidding

31. Produce all Documents relating to any of Your internal operations groups, employee groups, investigative teams, or task forces which have studied or examined (or are studying or examining) the effects of Header Bidding on any aspect Your business.
32. Produce all Documents relating to the establishment of, operation of, and conclusions drawn by _____.

33. Produce all marketing materials, materials relating to publicity campaigns, and material You provide to any of Your sales teams regarding Header Bidding.
34. Produce all Documents relating to any attempts by any Publisher, SSP, or Publisher Ad network to circumvent GAM's uniform pricing rules.
35. Produce the results of, and any supporting documentation associated with, any simulation or experiment You have conducted or are aware of related to Open Bidding, including but not limited to
36. Produce all Documents relating to Publishers or SSPs using Header Bidding and Open Bidding in combination, the implications of such conduct to You, and any actions You have taken or considered in response.
37. Produce all Documents that compare or relate to comparison of the performance of Open Bidding relative to Header Bidding, including but not limited to, the results of, and any supporting documentation associated with, any simulation or performance experiment related to Open Bidding and Header Bidding, including any Documents
38. Produce all Documents containing or relating to any analysis of the flow of queries running through Header Bidding as compared to Open Bidding,
39. Produce all Documents relating to any attempts by You to solicit any Ad Exchange to become an Open Bidding Partner, and all Documents relating to any independent action You have taken or considered to increase or accelerate the adoption of Open Bidding by other Ad Exchanges.
40. Produce all Documents relating to any attempts by You to solicit any Publisher to participate in Open Bidding, and all Documents relating to any independent action You have taken or considered to increase or accelerate the adoption of Open Bidding by Publishers.
41. Produce all Documents relating to Your evaluation of Open Bidding Partners.
42. Produce all Documents relating to Your decision to remove Last Look for Open Bidding.
43. Produce all Documents, including any Documents relating to any experiment, analysis, or simulation You conducted or are aware of which relates to the impact of Open Bidding on Header Bidding, including but not limited to, any impact on Publisher revenue from the adoption of Header Bidding, the win rate of Header Bidding winners in Open Bidding or against AdX, and the volume of inventory sold through Header Bidding solutions.
44. Produce all Documents relating to , including any drafts, proposals, or correspondence relating to any changes made to
45. Produce all Documents relating to any advantage or benefit conferred by increased viewability into Advertiser creatives as a result of Open Bidding which was not available to You prior to the introduction of Open Bidding.
46. Produce all Documents relating to

47. Produce all Documents relating to the negotiation and implementation of
48. Produce all contracts or agreements between
49. Produce all Documents relating to any fees You charge to Publishers, SSPs, or Ad Exchanges using Header Bidding that are not charged to Publishers, SSPs, or Ad Exchanges who are not using Header Bidding, or who are Open Bidding Partners or Authorized Buyers.
50. Produce all Documents relating to how You calculate or determine ad serving fees, the circumstances in which You charge ad serving fees, the circumstances in which You do not charge ad serving fees, and the circumstances in which You allow an exception to ad serving fees You would otherwise charge.
51. Produce all Documents relating to how You calculate fees for overly complex data reports and the circumstances in which such fees are charged.
52. Produce any contract between You and any third-party Ad Exchange, SSP, or Publisher that contains any provision that grants You “fair access” or the opportunity to bid on Publisher Ad Inventory sold on their platform.
53. Produce any contract between You and any third-party Ad Exchange, SSP, or Publisher that contains any provision that requires them to make Ad Inventory available through Open Bidding if they also sell that inventory through Header Bidding.

Unified Auction & Unified Pricing Rules

54. Produce all Documents that relate to Your decision to implement Unified Auction and adopt Unified Pricing Rules, including but not limited to, strategy documents, white papers, competitive impact studies, and market analyses preceding that decision as well as those evaluating the impact and performance of Your Ad Tech Products as a result of Your decision.
55. Produce all Documents, including any Documents that relate to any internal tests, experiments, simulations, or studies concerning the performance of third-party DSPs, Ad Networks, indirect line items, Direct sales and Header Bidding as a result of Your decision to move to Unified Auction and adopt Unified Pricing Rules.
56. Produce Documents that relate to any complaints made or concerns expressed by any T-50 Publisher, any T-50 Advertiser, any SSP, any DSP, or Ad Exchange, regarding the Unified Auction process (and/or Your announcement or implementation of Unified Auction), including all such complaints or concerns, any of Your internal discussion relating thereto, and any of Your responses.
57. Produce Documents analyzing or discussing the impact of Unified Auction on non-Google Ad Exchanges, Publishers, and/or Advertisers.
58. With respect to Your decision that publishers “will not be able to join the Bid Data Transfer file with other Ad Manager Data Transfer files” (see <https://www.blog.google/products/admanager/rolling-out-first-price-auctions-google-ad-manager-partners/> (last viewed June 22, 2020)), produce:
 - a. all Documents relating to Your decision, including all correspondence and studies underlying or otherwise relating to Your decision, Your evaluation of any alternatives,

and/or any analysis of how the decision may affect or has affected any Publisher or Header Bidding solution;

- b. a representative example of the Bid Data Transfer and other Ad Manager Data Transfer files relating to the sale of a particular Ad Impression won by a bidder participating via Header Bidding which You provided to the Publisher before this change; and
 - c. a representative example of the Bid Data Transfer and other Ad Manager Data Transfer files relating to the sale of a particular Ad Impression won by a bidder participating via Header Bidding which You provided to the Publisher after this change.
59. Produce all Documents, including any Documents _____ and any internal tests, experiments, simulations, or studies, which relate to Your Decision to introduce a new type of Bid Data Transfer file that contains bidding data from Authorized Buyers and Open Bidding, but which does not contain impression-level data or Header Bidding data.
 60. Produce Documents sufficient to show the process by which Publishers can link Your data transfer file with performance data from Header Bidding auctions.
 61. Produce Documents sufficient to show any efforts You have made to assist Publishers in comparing their Header Bidding data with the Unified Auction data reporting You provide.
 62. Produce all Documents, including any Documents _____ and any internal tests, experiments, simulations, or studies, which measure, forecast, predict, study, or research the impact that Your decision to move to a Unified Auction or adopt Unified Pricing Rules would have or has had on the adoption of Header Bidding.
 63. Produce any Documents indicating the extent to which Your decision to move to a Unified Auction and adopt Unified Pricing Rules was based on preventing any of Your Demand-Side Products from bidding against one another.
 64. Produce all Documents referencing both “Header Bidding” (or any synonymous term or phrase, e.g., “HB”) and “Transfer file” (or any synonymous term or phrase).
 - 65.
 - 66.
 - 67.
 - 68.

69.

Demand Side

70. Produce all Documents that relate to Your decision to restrict AdWords or Google Ads Advertisers to purchasing display inventory exclusively from the Google Display Network other than for remarketing purposes.
71. Produce all Documents, including any analysis, experiments, studies, or testing (including A/B testing or other comparative analysis) relating to the default campaign type in AdWords and/or the potential effects of any change or potential change thereto, including any analysis, studies, or testing relating to (or otherwise underlying or informing) Your decision to set the default campaign type in AdWords to include both Google Search Network and Google Display Network, and any effects such setting has had or could have on You or any Publisher, Advertiser, Ad Exchange, DFP, or SSP.
72. Produce all Documents that relate to any decision by You to disclose AdWords and Google Ads log-level bidding data.
73. Produce any Documents that demonstrate how DV360 selects a winning bid from multiple demand sources to before it participates in an AdX auction, Open Bidding auction, or Unified Auction.
74. Produce all Documents that relate to bid shading, bidding algorithms, artificial intelligence, computer programs and applications, or other bidding strategy used by Google Ads or DV360 when bidding into any Ad Exchange, Header Bidding solution, or other auction.
75. Produce Documents that relate to any efforts undertaken, policies implemented, or buying strategies implemented by You to avoid buying Ad Inventory through Header Bidding auctions.

Data Analytics and Verification

76. Produce all Documents relating to Your introduction of private APIs in any of Your AdTech Products or AdTech Auction Mechanics, or for otherwise limiting third-party data usage or portability.
77. Produce all Documents relating to Your efforts to address, track, or combat fraudulent digital ad impressions.
78. Produce all business and planning documents relating to Your consideration of, analysis of, or choice to offer any type of Attribution Model, including any type of Last Touch Attribution.

Revenue/Pricing/Profits

79. Produce all financial audits and audit reports concerning each of Your AdTech Products.

Accelerated Mobile Pages (AMP)

80. Produce all Documents relating to any efforts by any third-party Ad Exchange or SSP to increase the number of demand sources able to bid on Ad Inventory on AMP Pages, including those relating to any efforts based on traditional mediation techniques, Header Bidding, or by any other means.

81. Produce all Documents relating to Your use or imposition of timeout restrictions on Ad Requests relating to ads served on AMP Pages when the ad being served was sold through a Header Bidding solution or through any competing Ad Exchange.
82. Produce all Documents relating to Your restrictions on third-party vendors who provide ad analytics services from interoperating with any of Your AdTech Products or from having access to data relating to ad performance on an AMP Page.
83. Produce all Documents relating to lower monetization of Ad Inventory on AMP Pages compared to their non-AMP Page counterparts on mobile.
84. Produce all Documents relating to lower monetization of Ad Inventory on AMP Pages compared to their non-AMP Page counterparts on desktop.
85. Produce all Documents relating to Your method for preferencing AMP-compliant ads for AMP Pages on AdX or GAM.
86. Produce all experiments, analysis, or reports, including any such Documents relating to Your preferencing of AMP-compliant ads for AMP Pages on AdX or GAM.
87. Produce all Documents relating to the technical feasibility of designing AMP in way that would support Client-Side Header Bidding solutions.
88. Produce all Documents relating to any complaints by any Publisher regarding AMP's lack of support for Client-Side Header Bidding.
89. Produce Documents relating to any efforts You have made to participate in or avoid participation in Client-Side Header Bidding or other open RTB solutions for mobile apps.

YouTube

90. Produce all Documents relating to Your decision to remove from third-party DSPs the ability to bid on any YouTube Ad Inventory.
91. Produce all Documents relating to any communications from DSPs regarding an inability to bid on YouTube inventory.

Chrome

92. Produce all communications between You and any representative or agent of the Digital Advertising Alliance relating to the blocking or potential blocking of third-party cookies on Chrome.

Mobile

93. Produce Documents relating to any of Your policies, actions, or attempts to limit calls into Ad Auctions on GAM, AdX, or AdMob from any non-Google DSPs or Ad Exchanges with respect to Ad Inventory on mobile devices.
94. Produce Documents that relate to any changes to Your bidding algorithms for Ad Inventory on mobile devices to account for circumstances where a Publisher has set a price floor higher than the second price in Your Ad Auction.

95. Produce Documents relating to Your efforts to introduce real-time bidding into the market for mobile Ad Inventory, including but not limited to, Documents relating to
and any Documents studying or analyzing the actual or potential effects that such efforts would have on the adoption of Header Bidding.
96. Produce Documents relating to any restrictions You have instituted to restrict mobile Publishers from mediating with non-Google ad networks.

Google Cloud

97. Produce planning documents, white papers, market analyses, competitive analyses, strategic plans, or other decision-making and analytical documents that relate to how Your AdTech Products or AdTech Auction Mechanics interact with Google Cloud and/or any competing cloud services.
98. Produce all Documents reflecting how any non-Google SSP, DSP, Ad Exchange, Advertiser Ad Server, or Publisher Ad Server may experience cost savings, increased revenue, technical benefits (including reduced latency), or operational efficiencies when using Google Cloud.
99. Produce planning documents, white papers, market analyses, competitive analyses, strategic plans or other decision-making and analytical Documents that relate to Your marketing of Google Cloud for use in conjunction with any of Your AdTech Products.
100. Produce all communications between You and any Advertiser Ad Server, DSP, Ad Exchange, SSP, or Publisher Ad Server relating to Google Cloud or Your solicitation of their use of Google Cloud.
101. Produce all internal communications regarding Your decisions and strategies with respect to soliciting any Advertiser Ad Server, DSP, Ad Exchange, SSP, or Publisher Ad Server to use Google Cloud.

Material to/from Governmental Entities

102. Concerning Your acquisitions of DoubleClick, AdMob, AdMeld, Invite Media, and Adometry, produce all documents submitted in connection with Items 4(c) and 4(d) of the Hart-Scott-Rodino pre-notification filing forms, and any measurements, analyses, reports, studies, communications or discussions informing or relating to those submissions. The time period applicable to this Interrogatory is from January 1, 2007 to present.
103. Produce all Documents relating to the “initial estimate of the difference” “between what advertisers pay and what publishers receive from Google Ads” which You provided to the UK’s Competition and Markets Authority (see https://assets.publishing.service.gov.uk/media/5dfa0580ed915d0933009761/Interim_report.pdf, at page 202), including all material You submitted in support and all related correspondence. All such Documents should be produced as identical to (including BATES numbers), in the same form as, and organized in the same manner as, those produced to the Competition and Markets Authority.
104. Produce all Documents, including all communications, You sent to or received from the UK’s Competition and Markets Authority relating to their Market Study of Online Platforms and Digital Advertising (see https://assets.publishing.service.gov.uk/media/5dfa0580ed915d0933009761/Interim_report.pdf). All such Documents should be produced as identical to (including BATES numbers), in the same form as, and organized in the same manner as, those produced to the Competition and Markets Authority.

105. Produce all Documents, including answers to interrogatories or written questions, responses to Civil Investigative Demands, subpoenas, correspondence, and all other written material, which You received from or submitted to the House Judiciary Committee relating to its investigation of Online Platforms (see <https://docs.house.gov/Committee/Calendar/ByEvent.aspx?EventID=109793> (last viewed June 22, 2020)). All such Documents should be produced as identical to (including BATES numbers), in the same form as, and organized in the same manner as, those produced to the House Judiciary Committee.
106. Produce all Documents provided in response to the request for documents You received from the House Judiciary Committee dated September 13, 2019 (see https://judiciary.house.gov/sites/democrats.judiciary.house.gov/files/documents/alphabet_inc_rfi_signed_003.pdf (last viewed June 22, 2020)). All such Documents should be produced as identical to (including BATES numbers), in the same form as, and organized in the same manner as, those produced to the House Judiciary Committee.
107. Produce all correspondence between You and the United States Department of Justice (“DOJ”) in relation to any Civil Investigative Demand from DOJ to You dated January 1, 2019 or later, including but not limited to Civil Investigative Demands 30092, 30120, and 30121.
108. Produce all Documents, including special reports, answers to interrogatories or written questions, voluntary submissions, correspondence, and other written material, which You produced to or received from the United States Federal Trade Commission (“FTC”) in relation to any Order or Special Order issued to You pursuant to the FTC’s authority under Section 6(b) of the Federal Trade Commission Act on or after January 1, 2020. All such Documents should be produced as identical to (including BATES numbers), in the same form as, and organized in the same manner as, those produced to the FTC.

Internal Communications Channels

109. Produce all communications sent to, from, or on behalf of each of the Google Groups identified in Appendix A, and each additional Google Group, slack channel, wiki, hangout, and other electronic group messaging system or platform You identified in response to Interrogatories 123-124 above.
110. Produce all Documents owned by or accessible to each of the Google Groups identified in Appendix A, and each additional Google Group, slack channel, wiki, hangout, and other electronic group messaging system or platform You identified in response to Interrogatories 123-124 above.

General

111. Produce all Documents relating to any analysis, including substitution analysis, you have undertaken to assess or evaluate the extent to which the products or services of any other company compete with any of Your AdTech Products.
112. Produce all Documents relating to any analysis you have undertaken to assess or evaluate any indirect network effects between Your Advertiser-facing AdTech Products and Your Publisher-facing AdTech Products.
113. Produce all Documents relating to any analysis you have undertaken to assess or evaluate any barriers to entry and/or barriers to expansion faced by any other company who offers or potentially may offer any product or service in competition with any of Your AdTech Products; for purpose

of this request, “barriers” includes, but is not limited to, switching costs, default biases, information or data asymmetries, and access to inputs or customers.

114. Produce all communications between Google and the Interactive Advertising Bureau (IAB) concerning AMP, Header Bidding, and/or Supply Path Optimization.
115. Produce all Documents You reviewed or consulted in preparing any of Your responses to the Interrogatories in this CID and in the Original TX CID.
116. Produce Documents sufficient to support Your responses to the Interrogatories in this CID and in the Original TX CID.
117. To the extent You have not already done so, Produce all Documents responsive to the Requests for Documents in the Original TX CID in native format as specified in Exhibit B and in Instruction 3.A.C.a.
118. Produce Documents responsive to the Requests for Documents in this CID and in the Original TX CID which were or are associated with or created, held, or maintained by any of the Google Groups listed in Appendix A and/or any of the custodians listed in Appendix B. For purposes of clarity, neither this request nor Appendices A and B are intended to limit in any way the Google Groups and custodians from whom You must produce in response to this or any other CID; Your production must include all responsive non-privileged Documents from all of those Google Groups and custodians, as well as from all other sources in Your possession, custody, or control.
119. Produce all Documents, including all correspondence, sent to or from Sundar Pichai, Sergey Brin, and/or Larry Page which contain the phrase “Header Bidding” (or any synonymous term or phrase, e.g., “HB”).
120. Produce all Documents containing any of the following terms or phrases (or synonyms of any of the following terms or phrases):
 - a. Ads Data Hub; ; Authorized Buyers;
Dynamic Floor Pricing;
; Optimized Competition;
Supply path optimization;

EXHIBIT A

CERTIFICATE

STATE OF _____

COUNTY OF _____

_____, being duly sworn upon his/her oath states:

I am a representative of Alphabet Inc. and have knowledge of the facts and circumstances relating to the preparation of the answers to the interrogatories in this civil investigative demand. All of the requested information in the possession, custody, control, or knowledge of Alphabet Inc. has been set forth fully and accurately in the answers to interrogatories. I have knowledge of the facts and circumstances relating to the production of material in response to the requests for documents in this civil investigative demand. All of the requested material in the possession, custody, or control of Alphabet Inc. has been produced.

Title: _____

SUBSCRIBED and SWORN TO BEFORE ME this ____ day of _____, 2019.

NOTARY PUBLIC IN AND FOR THE
STATE OF _____

EXHIBIT B

SPECIFICATIONS FOR ELECTRONIC DOCUMENT PRODUCTION

DATA DELIVERY PRODUCTION REQUIREMENTS

Prior to any production, a meeting with the Antitrust Division is required to discuss the location of any potentially relevant Electronically Stored Information (ESI) – to include discussing E-mail, Network Shares, Local Storage, Databases, Mobile Devices, the Cloud, Chat Applications, and Social Networking.

This document describes the standard specifications and procedures for making an image-based production to the Antitrust Division of the Office of the Attorney General of Texas (“OAG”) in the form of Load Files.

- To ensure the efficient processing and review of any electronic production, legal, technical, and economic OAG staff need to resolve the details prior to production, and preferably before you or your vendor begin to gather and process responsive documents.
- Care should be taken to ensure that all responsive data and metadata are preserved in the collection process.
- These are not Unicode compliant specifications and do not cover production of translations.
 - Please contact OAG staff if either of these is anticipated.

I. Categories of Documents

Discussion regarding the details of an electronic production should focus on seven categories of documents:

- A. Email and other electronic messages (e.g. instant messaging and chat applications)
- B. Other electronic documents
- C. Hard copy documents
- D. Shared resources
- E. Databases
- F. Audio and video data
- G. Foreign language materials

General requirements for each category of document are outlined below. For information regarding document-specific metadata and bibliographic information, please refer to the enclosed Metadata Table of Requested Fields.

II. General Instructions for Productions

To ensure the efficient processing and review of any electronic production, contact the OAG before you or your vendor begin to gather and process responsive documents.

- A. A cover letter should be included with each production of data. The following information should be included in the letter:
 1. List of each piece of media (hard drive, thumb drive, DVD or CD) included in the production by the unique number assigned to it, and readily apparent on the physical media.

2. List of custodians, identifying:
 - a. The Bates range (and any gaps therein) for each custodian
 - b. Total number of records for each custodian
 - c. Total number of images for each custodian
 - d. Total number of native files for each custodian
 3. List of fields in the order in which they are listed in the data file
 4. Time zone in which emails were standardized during conversion (email collections only)
 5. Label all media with the following:
 - a. Case number, if applicable; if in response to an ID, the number of the ID
 - b. Volume Name
 - c. Production date
 - d. Bates range
 - e. Disk number (1 of X), if applicable
- B. Documents created or stored electronically **MUST** be produced in their original electronic format, not printed to paper or PDF.
 - C. Data should be produced using whichever media requires the least number of deliverables.
 - D. Organize productions by custodian, unless otherwise instructed. All documents from an individual custodian should be confined to a single load file.
 - E. All productions should be checked and produced free of computer viruses.
 - F. All produced media should be encrypted.
 - G. Password-Protected Files: to the extent any produced documents are password-protected, the Producing Party must either unlock the document prior to production or provide passwords in order to allow access by the Receiving Party. If the Producing Party is unable to process a document because of unknown passwords or encryption, the Parties shall meet and confer to determine the appropriate steps to take with respect to such document.
 - H. Production load files may also be electronically submitted via the internet (*e.g.*, file share sites, FTP) Load Files in excess of 5GB should be discussed with the OAG in advance of submission.

III. Categories of Documents

A. Email, Attachments, and Other Electronic Messages

Email and other electronic messages (*e.g.*, instant messages (IMs)) should be produced as image files with related searchable text, metadata and bibliographic information. Depending on

how the company's systems represent names in email messages or IMs, a table of names or contact lists from custodians may be required.

Email repositories, also known as email databases (*e.g.*, Outlook .PST, Lotus .NSF), can contain a variety of items, including messages, calendars, contacts, tasks, etc. For purposes of production, responsive items should include the "Email" metadata/database fields outlined in the Metadata Table, including but not limited to, all parent items (mail, calendar, contacts, tasks, notes, etc.) and child files (attachments of files to email or other items), with the parent/child relationship preserved. Similar items found and collected outside an email repository (*e.g.*, .MSG, .EML, .HTM, .MHT) should be produced in the same manner.

Each IM conversation should be produced as one document.

Outlook (.PST) and Lotus Notes (.NSF) email files may be produced in native file format. Production of these native files should be discussed in advance with the OAG.

Electronic phone records should be discussed with the OAG in advance of production to determine the optimal format of production.

B. Other Electronic Documents

Electronic documents include word-processing documents, spreadsheets, presentations, and all other electronic documents not specifically discussed elsewhere. These documents should be produced as image files with related extracted text, metadata and bibliographic information and links to the original native file. All passwords and encryption must be removed from electronic documents prior to production. The native file documents should be named per the BEGBATES#.

Refer to the Metadata Table of Requested fields for required metadata fields.

1. The following are examples of file types that should be produced in their native formats¹:
 - a. Word document, such as .DOC and DOCX
 - b. Excel spreadsheets, such as .XLS and XLSX.
 - c. PowerPoint presentations, such as .PPT and .PPTX
 - d. Microsoft Access databases, such as .MDB and .ACCDB
 - e. WordPerfect documents, such as .WPD
 - f. Adobe Acrobat documents, such as .PDF

¹ The listed extensions are merely common examples of file extensions associated with those formats and are not to be construed as limitations. In other words, Word documents with extensions other than .DOC and .DOCX should also be produced in native format.

2. Spreadsheets

Spreadsheets should be produced in native format (*e.g.*, as .XLSX files), with extracted text for the entire document, metadata, and bibliographic information. Provide a single placeholder image of the spreadsheet. The placeholder image must contain at a minimum the BEGDOC#, FILENAME, and FILEPATH. The Bates range for a spreadsheet should be a single number (*e.g.*, ABC-JD-00000001 – ABC-JD-00000001). The linked native file name should match the BEGDOC# with the appropriate file extension.

3. Presentations

Presentations should be produced in full slide image format along with speaker notes (which should follow the full images of the slides) with related extracted text, metadata, and bibliographic information. Presentations should also be produced in native format (*e.g.*, as .PPT files). The linked native file name should match the BEGDOC#, FILENAME, and FILEPATH.

4. Hidden Text

All hidden text (*e.g.*, track changes, hidden columns, hidden slides, mark-ups, notes) shall be expanded and rendered in the extracted text file and associated image file.

5. Embedded Files

All embedded objects (*e.g.*, graphical files, Word documents, Excel spreadsheets, .wav files) that are found within an electronic document shall be produced so as to maintain the integrity of the source document as a single document. For purposes of production, the embedded files shall remain embedded as part of the original source document. Internal documents that are embedded or referenced via hyperlinks and hyperlinked shared resources must be produced as separate, attached documents following the instructions in this appendix.

6. Image-Only Files

All image-only files (non-searchable PDFs, multi-page TIFFs, Snipping Tool screenshots, etc., as well as all other images that contain text) shall be produced with associated OCR text, metadata, and identifying information. Each production shall state the number of image-only files and non-imaged files produced.

7. Archive File Types

Archive file types (*e.g.*, .zip, .rar) must be uncompressed for processing. Each file contained within an archive file should be produced as a child to the parent archive file. If the archive file is itself an attachment, that parent/child relationship must also be preserved.

8. Other File Types and Non-PC or Non-Windows Based Systems

Other file types, such as those generated by financial or graphic design software, or file types from non-PC or non-Windows based systems (*e.g.*, Apple, UNIX, LINUX systems), should be discussed with the OAG in advance of production to determine the optimal format of production.

C. Hard-Copy Documents

Hard-copy documents (*e.g.*, documents ordinarily maintained in paper) are to be produced as black-and-white image files, except where noted below, with related searchable OCR text and identifying information. Special attention should be paid to ensure that hard-copy documents are produced as they are kept, reflecting attachment relationships between documents and information about the file folders within which each document is found. In addition, multi-page documents must be produced as single documents (*i.e.*, properly unitized) and not as several single-page documents. Where color is required to interpret the document, such as hard copy photos, and certain charts, its image **MUST** be produced in color. These color images are to be produced as JPEG format. Hard-copy photographs should be produced as color JPEGs, if originally in color, or grayscale TIFF files if originally in black-and-white.

D. Shared Resources

Shared Resources should be produced as separate custodians if responsive custodians have access to them or if they contain responsive documents. The name of the group having access would be used as the custodian name, *i.e.* Marketing Execs or Accounting Dept. The company will separately provide a brief description of each shared resource that includes a list of the custodians who have access to that shared resource.

E. Database Productions

Production of enterprise databases are not addressed in these specifications and must be discussed with the appropriate legal and technical staff to determine the optimal production format; these will usually fall outside the scope of an image-based production. Care must be taken to ensure that all responsive databases and their metadata are preserved.

F. Audio and Video Data

Audio and video file types not specifically discussed elsewhere should be discussed with the OAG in advance of production to determine the optimal format of production.

G. Foreign Language Materials

Production of Foreign Language Materials not addressed in these specifications must be discussed with the appropriate legal and technical staff to determine the optimal production format prior to production.

IV. Processing

A. De-Duplication

Before doing any de-duplication, provide the OAG with a written description of the method that will be used to de-duplicate (including which elements are compared and what hash codes are used), and what is considered a duplicate. Then confirm that your approach is acceptable to the OAG. De-duplication of hard-copy documents, or that of “loose” electronic documents (*e.g.*, presentation slides located on the custodian’s C: drive) against email attachment versions of those same documents, is unacceptable. The integrity of any produced email and any related “document family” must be maintained except as limited by any claim of privilege. De-duplication should occur both vertically within each custodian and horizontally across

custodians. Vertical de-duplication is crucial when a production includes electronic documents from back-ups. Horizontal de-duplication must be done in a way that preserves (and produces) information on blind copy (Bcc) recipients of emails and other custodians whose files contain the duplicates that will be eliminated from the production.

A Custodian Append File is to be produced when de-duplicating ACROSS custodians (*i.e.*, horizontal de-duplication) and data is produced on a rolling basis. The file must be provided on an incremental basis **starting with the second submission**; as more custodians are discovered for previously produced documents, this file is updated with **only the new** custodian information.

The Custodian Append File is a two-field delimited file consisting of the BEGDOC#s of the previously delivered document and the **new** custodian names for the duplicates of those records that would otherwise have been produced in the subsequent (new) submissions.

These specifications do not allow for near de-duplication or email threading. These formats must be discussed separately with the OAG and consent obtained prior to the use of such techniques for production.

B. Document Numbering

Documents must be uniquely and sequentially Bates-numbered across the entire production, with an endorsement burned into each image. Each Bates number shall be of a consistent length, include leading zeros in the number, and unique for each produced page. Bates numbers should contain **no more** than three segments. For example, a company identifier, a middle segment identifying the custodian, and a sequential page counter with connecting hyphens. The number of digits in the numeric portion of the format should not change in subsequent productions, nor should spaces, hyphens, or other separators be added or deleted. Under no circumstances should bates numbers contain embedded spaces, slashes (/), backslashes (\), carats (^), ampersands (&), hash marks (#), plus signs (+), percent signs (%), dollar signs (\$), exclamation marks (!), pipes (|), any character used as a delimiter in the metadata load files, or any character not allowed in Windows file-naming convention (, \ / : * ? " < > | ~ @ ^). Bates numbers may contain hyphens (-).

C. Privilege Designations

Documents redacted pursuant to any claim of privilege will be designated "Redacted" in the SPECPROPERTIES field as described in the Metadata Table. Appropriately redacted searchable text (OCR of the redacted images is acceptable), metadata, and bibliographic information must also be provided. All documents that are part of a document family that includes a document withheld pursuant to any claim of privilege will be designated "Family Member of Privileged Doc" in the SPECPROPERTIES field as described in the Metadata Fields table for all other documents in its family. Placeholder images with BEGDOC#, FILENAME, FILEPATH and reason withheld (*e.g.*, "Privileged") should be provided in place of the document images of the privileged document.

IMAGE AND TEXT FILE SPECIFICATIONS, AND LOAD FILE CONFIGURATION

I. Load File Configuration

- Each production must have a unique VOLUMENAME (e.g., TXAG_VOL001)
- The VOLUMENAME should increase sequentially with each subsequent production (e.g., TXAG_VOL001, TXAG_VOL002, etc.)
- Under the VOLUMENAME folder, the production should be organized into 4 subfolders:
 - DATA (should contain metadata, DAT, OPT, custodian append, etc. files)
 - IMAGES (may contain subfolders, with no more than 5,000 images per folder)
 - NATIVES (may contain subfolders, containing linked native files, with no more than 5,000 files per folder)
 - TEXT (may contain subfolders, with document-level text files)

II. Image/Native File Specifications

- Black-and-white Group IV Single-Page TIFFs (300 DPI). Color images should be provided in .jpg format when color is necessary.
- Image file names should match the page identifier for that specific image and end with the .tif (or .jpg if needed) extension.
 - Example: ACME-ABC-0003072.TIF
- File names cannot have embedded spaces, commas, ampersands, slashes, back slashes, hash marks, plus signs, percent signs, exclamation marks, any character used as a delimiter in the metadata load files, or any character not allowed in Windows file-naming convention. (, & \ / # + % ! : * ? “ < > | ~ @ ^)
- Images for a given document must reside together in the same folder.
- The maximum number of image files should be limited to 5,000 per folder.
- Native file names should match the BEGDOC entry for that specific record and end with the appropriate file extension.
- The maximum number of native files in a subfolder should be limited to 5,000 per folder.
- Any encryption or password protection will be removed from all native format files produced.

III. Extracted or Searchable Text File Specifications and Control List Configuration

- Extracted text, as opposed to OCR, must be provided with all records, except for documents that originated as hard copy or redacted documents.
 - For hard copy documents, provide OCR text.
 - For redacted documents, provide OCR text for the redacted version.
- There should be a single extracted/OCR text file per document, in ASCII Text format only.
- The name of the text file should be the same as the document's first page/Bates number, with a TXT extension: BEGDOC#.TXT.
- There must be a carriage return and line feed (CRLF) no later than the 250th character of the first line of every text file.

- All soft and hard returns in the native electronic or image file should be replicated as a Carriage Return Line Feed (CRLF) in the text file (i.e. the lines of text in the file terminate with a CRLF in correlation with the appearance of the native electronic or rendered image file). Pay particular attention to not allow multi-line paragraphs of e-mails to be rendered as a single, extended line of text.
- Text files should include page breaks that correspond to the “pagination” of the image files. Place text files under a “TEXT” folder and provide a Control List file for loading in the “DATA” folder on the delivery media.

IV. Image Load File (.opt) Configuration

- Page level comma-delimited file containing seven fields per line.
 - PageID,VolumeLabel,ImageFilePath,DocumentBreak,FolderBreak,BoxBreak,PageCount
 - PageID – PageID of the item being loaded. MUST be identical to the image name (less the file extension).
 - VolumeLabel – Optional. If used it is preferable that it match the VOLUMENAME assigned in the corresponding metadata load file.
 - ImageFilePath – The path to the image from the root of the delivery media.
 - DocumentBreak – The letter “Y” denotes the first page of a document. If this field is blank the page is not the first page of a document.
 - FolderBreak – Leave empty
 - BoxBreak – Leave empty
 - PageCount – Optional
- Example - ABC-JD00030005,.\ABC002\Images\001\ ABC-JD-00030005.tif,Y,,

V. Metadata Load File Delimiters and Configuration

- Field Separator ¶ (ASCII 020)
- Text Qualifier þ (ASCII 254)
- Substitute Carriage Return or New Line in data ® (ASCII 174)
- Multi-value separator (Do Not Follow with Space) ; (ASCII 059)
- Date format YYYYMMDD (date type fields only)
- Time format HH:MM:SS in 24-hour format (e.g., 04:32 pm formatted to 16:32:00 – Do not include AM, PM, or Timezone² indicators).
- There should be one line for every record in the load file. A carriage return and line feed (CRLF) must appear at the end of each record and ONLY at the end of each record.
- The first row of each metadata load file should be a header row containing the field names. Field names must match OAG Metadata Table field names.
- All requested fields should be present in the metadata load file whether data exists or not. Field order must remain consistent in subsequent productions.

² Note that Timezone information is still required in a different metadata field.

VI. METADATA TABLE OF REQUESTED FIELDS

Field Name	Field Description	Field Type
VOLUMENAME	Production volume number (e.g., ABC001-001)	Note Text
BEGDOC	Start Bates (including prefix) -- No spaces or special characters	Note Text
ENDDOC	End Bates (including prefix) - No spaces or special characters	Note Text
ATTACHRANGE	Range of the BEGDOC value of the parent record to the ENDDOC value (including prefix) of the last child record (for example, ABC-JD-00001201 ABC-JD-00001220); populated for all documents in the group. Empty if the record is NOT in family grouping	Note Text
BEGATTACH	Starting Bates of attachment range	Note Text
ENDATTACH	Ending Bates of attachment range	Note Text
PARENTBATES	Parent record's BEGDOC#, including prefix (populated ONLY in child records)	Note Text
CHILDBATES	Child document list: BEGDOC# of each child, separated by semicolons [;] (populated ONLY in parent records)	Multi-Entry
NUMPAGES	Page count	Integer
SPECPROPERTIES	Indicate all that apply : Record Type: E-Doc, E-Doc Attachment, Email, Email Attachment, Hard Copy, Calendar Appt Other Notations: Translation of [DOCID of original], Translated as [DOCID of Translation] Privilege Notations: Redacted, Privileged, Family Member of Priv Doc	Multi-Entry
CUSTODIAN	Custodian(s) / source(s) - format: Last, First or ABC Dept	Multi-Entry
TIMEZONE	The TimeZone from which the native file was collected.	Note Text
FROM	Author of the Email or Calendar item (as formatted on the original)	Note Text
TO	Recipients of the Email (as formatted on the original)	Multi-Entry
CC	Names of the individuals who were copied on the Email (as formatted on the original)	Multi-Entry
BCC	Names of the individuals who were blind-copied on the Email (as formatted on the original)	Multi-Entry
SUBJECT	Email, document, or calendar subject	Note Text
DATESENT	Date the Email was sent. Format: YYYYMMDD.	Date

Field Name	Field Description	Field Type
TIMESENT	Time Email was sent -- Format: HH:MM:SS (use 24 hour times, e.g., 13:32 for 1:32 pm; time zone indicators cannot be included)	Time
DATERECEIVED	Date Email was received. Format: YYYYMMDD.	Date
TIMERECEIVED	Time Email was received. Format: HH:MM:SS (use 24 hour times, e.g., 13:32 for 1:32 pm; time zone indicators cannot be included)	Time
HEADER	The internet header information for Email sent through the internet;	Note Text
INTERNETMSGID	Globally unique identifier for a message which typically includes messageid and a domain name. Example: <0E6648D558F338179524D555@m1p.innovy.net	Note Text
MESSAGEID	Proprietary email database/mailstore/post office file associated with centrally managed enterprise email servers. Microsoft Outlook PST EntryID, the UniqueID (UNID) for Lotus Notes, equivalent value for other proprietary mailstore formats.	Note Text
CONVERSATIONINDEX	Email Thread Identification	Note Text
IMPORTANCE	Email flag indicating priority level set for message	Note Text
DATECREATED	Date electronic file was created. Format: YYYYMMDD.	Date
REVISION	Revision number extracted from metadata of electronic documents	Note Text
DATESAVED	Date native file was last modified. Format: YYYYMMDD.	Date
ORGANIZATION	Company field extracted from the metadata of an electronic document	Note Text
KEYWORDS	List of keywords, tags, and categories extracted from the metadata of an electronic document	
AUTHOR	Author field value extracted from the metadata of a native file	Note Text
MODIFIED	Last Modified as	
SPEC#	Subpoena/request paragraph number to which the document is responsive	Multi-Entry
SEARCHVALUES	List of search terms used to identify record as responsive (if used)	Multi-Entry
HASHMD5	Document MD5 hash value (used for de-duplication or other processing) NOTE: only one hash value metadata field need be provided—either MD5 hash or SHA1 hash.	Note Text
HASHSHA	Document SHA1 hash value (used for de-duplication or other processing) NOTE: only one hash value metadata field need be provided—either MD5 hash or SHA1 hash.	Note Text

Field Name	Field Description	Field Type
FILESIZE	File size in Bytes (integer value only - do not include unit of measure or decimal places - e.g., 568)	Integer
FILENAME	File name of electronic document with the file extension (e.g., Re: tomorrow sounds fun.eml; Read this today.docx)	Note Text
APPLICATION	Application used to create electronic document (e.g., Excel, Outlook, Word) as reflected in metadata	Note Text
FILEEXTENSION	File extension of electronic document (e.g., .eml, .msg, .xlsx)	Fixed Length 5 chars
FOLDERLABEL	Email folder path (sample: Inbox\Active); or Hard Copy folder/binder title/label	Note Text
FILEPATH	File path to electronic document as it existed in its original environment	Note Text
NATIVELINK	File path location to the current native file location on the delivery medium	Note Text