FORENSIC ANALYSIS REPORT

Minnesota Court Records Online (MCRO)

MCRO | Doc-Set Group Forensics

Part 1 of 5: Corpus Profile & Document Statistics

8 Doc-Set Groups · 1,043 Unique Documents · Series Census Report

Report Date	March 5, 2026
Series	Part 1 of 5 — Corpus Census (Parts 2–5 inherit cohort definitions from this report)
Data Source	Minnesota Court Records Online (MCRO) — Public Records
Database	PostgreSQL (Supabase, ibfmjtwahkwqzcmeyqii, us-west-2) — Live query
Corpus Scope	8 doc_set-tagged cohorts from children_doc_set table
Total Unique Docs	1,043 (from 1,091 per-group rows across 8 groups)
Cases Represented	Up to 173 distinct cases per group
Reproducibility	All statistics derived from live DB queries. SQL in Appendix.
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IMPORTANT DISCLAIMER

This report presents objective forensic data findings reproducible from a live PostgreSQL database. It does not assert conclusions about guilt, fabrication of records, fraud, or criminal intent by any party.

All statistics in this report were computed fresh from the live MCRO forensic database immediately before report generation. No numbers from prior reports or training data have been carried forward as facts.

This is Part 1 of a 5-part forensic series. It establishes the definitive cohort definitions, sizes, and document-level statistics that Parts 2–5 must inherit without re-derivation. Cohort counts in subsequent parts must match the figures in this report; any divergence must be explicitly documented.

Findings represent measurable patterns in document metadata and structural properties. Each finding requires independent expert examination before use in formal legal proceedings. It is strongly recommended that a credentialed digital forensics examiner (CFCE, EnCE, or equivalent) independently verify these findings.

NOTE ON COLUMN NAMING: During analysis, the children_doc_set table was found to use the column name 'value' (not 'doc_set' as described in the schema reference). All SQL in this report uses the live column name 'value'. The eight group labels are exact string values stored in that column.

EXECUTIVE SUMMARY

- **Corpus Size:** The 8 doc_set groups collectively contain 1,091 per-group document assignments mapping to 1,043 unique PDFs. META groups account for 844 assignments; AUTH groups for 247.
- **Multi-Group Membership:** 48 documents appear in more than one group simultaneously — 36 in exactly two groups and 6 in three groups. All triple-membership documents share the same structural signature: META_ESolutions-Signature + META_Signed-after-eFile + one AUTH group.
- **META vs AUTH Segregation:** 796 documents are exclusively in META groups; 220 exclusively in AUTH groups. Only 27 documents bridge META and AUTH simultaneously, making the two classification hierarchies largely distinct.
- **Dominant Group:** META_Created-after-eFile is the largest group at 656 documents (62.9% of all unique docs), spanning 8 years (2017–2025) across 173 cases and 63 clusters. It is the broadest-footprint group in the corpus.
- **AUTH_Judith-Cole: Extreme Concentration:** 85.4% of AUTH_Judith-Cole's 123 documents are a single filing type: 'Findings and Order'. This is the highest single-type concentration of any group.
- **META_MSIP: Appellate Signature:** 79.4% of META_MSIP's 34 documents are MN Court of Appeals case type (MN-COA) — unique among all 8 groups, which are otherwise 99–100% trial-court criminal (CR) filings. META_MSIP also has a 141-day temporal window (Apr–Aug 2025), the most compressed span in the series.

- **Cross-Group Cluster Nexus:** Four defendant clusters — TERRELL JOHNSON (cluster 14), AESHA OSMAN (cluster 80), IFRAH HASSAN (cluster 230), and RASHEED RICHARDSON (cluster 1730) — each appear in 6 of the 8 groups, making them the highest-density cross-group intersections in the corpus.
- **Strongest Meta-Meta Overlap:** META_ESolutions-Signature and META_Signed-after-eFile share 18 documents — the largest non-diagonal cell in the 8×8 co-occurrence matrix. These 18 documents simultaneously have a Tyler/ESolutions digital signature AND were cryptographically signed after their official e-file date.
- **Hashpack Coverage:** 100% of all 1,043 cohort documents have hashpack companions — complete coverage enabling all downstream hash analysis in Parts 2–3.
- **No Cross-Case SHA256 Collisions:** No document in any of the 8 groups shares its doc_sha256 hash with a PDF filed under a different case UID. Each document is a unique binary artifact attributed to a single case.

TABLE ES-1: Corpus Overview — 8 Doc-Set Groups

Group	Type	Docs	Cases	Clusters	First Filing	Last Filing	Span (days)
META_Created-after-eFile	META	**656**	173	63	2017-05-23	2025-05-29	2,928
META_ESolutions-Signature	META	**134**	76	47	2017-09-13	2025-04-03	2,759
META_MSIP†	META	**34**	29	2	2025-04-03	2025-08-22	141
META_Signed-after-eFile	META	**20**	16	16	2018-08-28	2024-07-15	2,148
AUTH_Alisha-Nehring	AUTH	**29**	24	13	2019-07-31	2024-07-15	1,811
AUTH_Amanda-Burg	AUTH	**75**	38	17	2021-08-30	2023-08-24	724
AUTH_Judith-Cole	AUTH	**123**	86	31	2017-02-21	2022-12-20	2,128
AUTH_Megan-Larison-DHS	AUTH	**20**	6	2	2019-09-05	2021-01-25	508
META SUBTOTAL (4 groups)	**META**	**844**	—	—	2017-02-21	2025-08-22	3,106
AUTH SUBTOTAL (4 groups)	**AUTH**	**247**	—	—	2017-02-21	2023-08-24	2,376
TOTAL UNIQUE DOCUMENTS	**ALL**	**1,043**	—	—	2017-02-21	2025-08-22	3,104

† META_MSIP: 28 of 34 documents have null cluster_id (appellate filings without district-court cluster assignment).

⚑ KEY METRICS — NUMBERS THAT DEMAND ATTENTION

- META_Created-after-eFile: 656 documents — 62.9% of all unique cohort docs — span 8 years across 173 cases. The XMP creation date post-dates the official e-file date on every one of these documents.
- AUTH_Judith-Cole: 105 of 123 documents (85.4%) are a single filing type — 'Findings and Order' — representing near-total filing-type homogeneity.
- META_MSIP: 79.4% Court of Appeals case type (MN-COA). All 34 documents fall within a 141-day window (Apr 3 – Aug 22, 2025). Zero such documents existed in the corpus before April 3, 2025.
- META_ESolutions-Signature ∩ META_Signed-after-eFile: 18 documents are simultaneously in both groups — bearing a Tyler Technologies ESolutions digital signature AND having a sign timestamp that post-dates their official e-file date.
- Six triple-membership documents: all 6 combine META_ESolutions-Signature + META_Signed-after-eFile + exactly one AUTH group — a structurally uniform triple-overlap pattern.
- Cross-group cluster nexus: TERRELL JOHNSON, AESHA OSMAN, IFRAH HASSAN, and RASHEED RICHARDSON each have documents in 6 of the 8 groups — making them the most forensically interconnected defendants in the corpus.
- AUTH_Megan-Larison-DHS: 20 documents spread across only 3 calendar months (Sep 2019, Jun 2020, Jan 2021) in 6 cases and 2 clusters — the most temporally compressed and case-concentrated AUTH group.
- 100% hashpack coverage: all 1,043 documents have complete hashpack companions — zero gaps in the hash evidence chain for Parts 2 and 3 of this series.

METHODS

This report applies a census-first methodology: all eight doc_set cohorts are fully enumerated before any analytical comparison is performed. The goal is an unambiguous, reproducible reference table that Parts 2–5 of this series can inherit without re-derivation.

Anchor CTE and Column Discovery

The primary cohort is defined via the children_doc_set table, which assigns each evidence_uid to one or more named doc_set groups. During initial scout queries, it was discovered that the live table uses the column name 'value' (not 'doc_set' as referenced in the schema documentation). All queries in this report use the confirmed live column name. The Anchor CTE (see Appendix A1) joins children_doc_set to the children table on evidence_uid to attach filing metadata, and to hashpack for document complexity metrics.

Multi-Membership Handling

A critical design decision for this series is that a single evidence_uid may appear in more than one of the eight groups. All per-group counts in this report count a document in every group it belongs to (additive/non-exclusive counting). Unique document counts use COUNT(DISTINCT evidence_uid) across the combined cohort. Both figures are always reported together. This distinction is mandatory for all downstream analyses in Parts 2–5.

Analyses Performed

Eight analyses were conducted: (1) Cohort Size Census — group-level document, case, and cluster counts; (2) Multi-Group Membership Overlap — counting documents in 2+ groups and computing the 8×8 co-occurrence matrix; (3) Filing Type Distribution — top-10 filing types per group by frequency; (4) Case Type Composition — distribution of case_type values per group; (5) Temporal Range — per-group date spans and monthly activity; (6) Cluster & Case Footprint — cluster concentration and cross-group cluster nexus; (7) Document Complexity Profile — hashpack-derived page counts, file sizes, and stream counts; (8) Multi-Case Filing Detection — SHA256-based cross-case deduplication.

Tables and Views Used

Primary tables: children_doc_set (cohort definition), children (document metadata), hashpack (document-level hash metrics), children_case_set (set membership labels), case_registry (case and cluster identity). No hashpack sub-tables, signature detail tables, or children_doc_strings were used in this part; those are reserved for Parts 2–5.

Multi-Case Filing Methodology

Multi-case filing was assessed by identifying evidence_uid values whose doc_sha256 hash appears in the children table under more than one distinct case_uid. This tests whether any binary-identical PDF was filed into multiple distinct cases. The children_case_set table was examined for its column structure and found to contain collection-set membership labels (values such as 'A', 'B', 'GUERTIN', 'SRC_H_*') rather than case_uid references; it was not used for this analysis.

FINDINGS

Finding 1: Cohort Size Census & Multi-Group Membership

Background

The eight doc_set groups were defined by metadata properties (META_*) or document authorship attribution (AUTH_*). Before any comparative analysis can proceed, the exact size of each group — and the degree to which documents belong to multiple groups simultaneously — must be established unambiguously. This finding provides the definitive counts that govern all downstream analyses.

Findings

The 8 groups collectively contain 1,091 per-group document assignments (some documents counted multiple times). The distinct evidence_uid count is 1,043 unique documents. The difference — 48 documents — represents multi-group membership.

Group	Docs (per-group)	Distinct UIDs	Cases	Clusters	Hashpack	Multi-Case %
META_Created-after-eFile	**656**	656	173	63	100%	N/A†
META_ESolutions-Signature	**134**	134	76	47	100%	N/A†
META_MSIP	**34**	34	29	2	100%	14.7%
META_Signed-after-eFile	**20**	20	16	16	100%	N/A†
AUTH_Alisha-Nehring	**29**	29	24	13	100%	N/A†
AUTH_Amanda-Burg	**75**	75	38	17	100%	N/A†
AUTH_Judith-Cole	**123**	123	86	31	100%	N/A†
AUTH_Megan-Larison-DHS	**20**	20	6	2	100%	N/A†
TOTAL UNIQUE	**1,091**	**1,043**	—	—	**100%**	—

† Multi-Case % via doc_sha256 cross-case collision. 0% = all docs unique per case. Only META_MSIP shows non-zero because children_case_set labels were examined separately (see Finding 8).

Multi-group membership breakdown: 1,001 documents belong exclusively to one group; 36 belong to exactly two groups; 6 belong to exactly three groups; zero belong to four or more groups.

Membership Category	Doc Count	% of Unique
Exclusive to 1 group	**1,001**	96.0%
Member of exactly 2 groups	**36**	3.5%
Member of exactly 3 groups	**6**	0.6%
Member of 4+ groups	**0**	0.0%
META-only docs	**796**	76.3%
AUTH-only docs	**220**	21.1%
META + AUTH overlap	**27**	2.6%

Significance

The 96.0% single-group exclusivity rate confirms that the eight classification groups are largely non-overlapping by design. The 27 META+AUTH overlap documents — a 2.6% bridge — are particularly significant for Parts 2–5: they are documents that qualify under both a metadata anomaly criterion AND an authorship criterion simultaneously.

Connecting Context

These counts are the definitive corpus reference for the entire series. Parts 2–5 must open with a verification step confirming their cohort counts match this table. Any divergence must be documented explicitly. The 100% hashpack coverage means all 1,043 documents are available for hash analysis in Part 2.

Finding 2: Cross-Group Co-Occurrence Matrix

Background

An 8×8 symmetric co-occurrence matrix quantifies how many evidence_uid values are shared between each pair of groups. Diagonal values represent each group's self-count (documents in that group). Off-diagonal values represent cross-group overlap. Zero overlap between two groups indicates entirely disjoint document sets.

Findings

Group \ Group	CreAfE	ESol	MSIP	SigAfE	ANehr	ABurg	JCole	MDhs
CreAfE	656	—	—	2	1	—	6	—
ESol	—	134	1	18	10	8	2	—
MSIP	—	1	34	—	—	—	—	—
SigAfE	2	18	—	20	3	2	1	—
ANehr	1	10	—	3	29	—	—	—
ABurg	—	8	—	2	—	75	—	—
JCole	6	2	—	1	—	—	123	—
MDhs	—	—	—	—	—	—	—	20

TABLE F2-1: 8×8 Co-Occurrence Matrix. Diagonal = group self-count (blue). Non-zero off-diagonal cells (yellow) = shared documents. Gold cells = highest overlap. Dashes = zero overlap.

Key observations from the matrix:

- META_ESolutions-Signature ∩ META_Signed-after-eFile = 18 (largest off-diagonal cell). These 18 documents simultaneously qualify under both metadata anomaly criteria.
- AUTH_Alisha-Nehring ∩ META_ESolutions-Signature = 10 (second-largest overlap). Documents authored by Nehring also carry Tyler/ESolutions digital signatures.
- AUTH_Amanda-Burg ∩ META_ESolutions-Signature = 8. Same cross-category pattern as Nehring.
- AUTH groups have zero mutual overlap (all AUTH × AUTH cells = 0). No document is attributed to more than one named author.

- META_MSIP overlaps only with META_ESolutions-Signature (1 doc) — an appellate order with a Tyler signature.
- AUTH_Megan-Larison-DHS has zero overlap with every other group. It is the most isolated group in the corpus.

Triple-membership documents (6 total) all share the same structural signature: META_ESolutions-Signature + META_Signed-after-eFile + one AUTH group. The following table lists all six:

Filename	Filing Type	Date	Groups
MCRO_27-CR-18-19274_Order-Other_2018-08-28_20240430093110.pdf	Order-Other	2018-08-28	AUTH_Judith-Cole | META_ESolutions-Signature | META_Signed-after-eFile
MCRO_27-CR-19-12466_Order-Other_2019-07-31_20240430091856.pdf	Order-Other	2019-07-31	AUTH_Alisha-Nehring | META_ESolutions-Signature | META_Signed-after-eFile
MCRO_27-CR-22-18209_Order for Production of Medical Records_2023-04-03_20240429162059.pdf	Order for Production of Medical Records	2023-04-03	AUTH_Amanda-Burg | META_ESolutions-Signature | META_Signed-after-eFile
MCRO_27-CR-22-20527_Order for Production of Medical Records_2023-04-03_20240429162755.pdf	Order for Production of Medical Records	2023-04-03	AUTH_Amanda-Burg | META_ESolutions-Signature | META_Signed-after-eFile
MCRO_27-CR-23-1886_Order for Continuance_2023-06-14_20240430072357.pdf	Order for Continuance	2023-06-14	AUTH_Alisha-Nehring | META_ESolutions-Signature | META_Signed-after-eFile
95__Judge-Julia-Dayton-Kleins-Order-to-Recuse__2024-07-15.pdf	Order to Recuse	2024-07-15	AUTH_Alisha-Nehring | META_ESolutions-Signature | META_Signed-after-eFile

Significance

The zero mutual overlap among AUTH groups confirms that the four named-author classifications are cleanly partitioned — each document is attributed to at most one named examiner. The META-AUTH overlaps (especially Nehring×ESol=10, Burg×ESol=8) indicate that documents authored by specific examiners disproportionately carry Tyler/ESolutions signature properties. The triple-membership documents are the most forensically layered in the cohort: they satisfy three independent classification criteria simultaneously.

Connecting Context

The META_ESolutions-Signature group is the central hub of cross-group overlap, appearing in 5 of the 7 non-zero off-diagonal clusters. Parts 4 and 5 (signature analysis and text extraction) will focus heavily on this group. The 18-document intersection with META_Signed-after-eFile is a primary target for Part 4 signature forensics.

Finding 3: Filing Type Distribution Per Group

Background

Filing type describes the official document category assigned at the time of court filing. The distribution of filing types within each group reveals whether a group is a broad cross-category collection or concentrated in specific document types. High concentration indicates that a classification criterion selects for specific procedural contexts.

Findings

Group	Top Filing Type (#1)	# Docs	% of Group	Top-3 Coverage
META_Created-after-eFile	Notice of Case Reassignment	**142**	21.6%	55.9%
META_ESolutions-Signature	Order Revoking Interim Conditions	**29**	21.6%	47.7%
META_MSIP	Order - Granting/Denying Mandamus/Prohibition	**19**	**55.9%**	**88.2%**
META_Signed-after-eFile	Order-Other	**4**	20%	45%
AUTH_Alisha-Nehring	Order-Other	**15**	**51.7%**	79.2%
AUTH_Amanda-Burg	Proposed Order or Document	**41**	**54.7%**	**94.7%**
AUTH_Judith-Cole	Findings and Order	**105**	**85.4%**	**100%**
AUTH_Megan-Larison-DHS	Proposed Order or Document	**7**	35%	**100%**

Notable filing type patterns by group:

- AUTH_Judith-Cole: Top-1 filing type (Findings and Order) accounts for 85.4% of the group. Top-3 coverage = 100%. This group is effectively a single-document-type collection.
- AUTH_Amanda-Burg: Top-3 coverage = 94.7%. The top two types — Proposed Order or Document (54.7%) and Correspondence for Judicial Approval (28.0%) — suggest that Burg primarily authors pre-judicial documents submitted for court approval rather than final orders.
- META_MSIP: 55.9% Mandamus/Prohibition orders, reflecting the appellate procedural context of this group's MN-COA case type dominance.
- META_Created-after-eFile: The most diverse group by filing type. Top-3 coverage = 55.9%. Notice-type documents (case reassignment, remote hearing, returned mail) dominate — administrative/ministerial filings rather than substantive orders.
- META_ESolutions-Signature: Most heterogeneous of the META groups by filing type. 'Order Revoking Interim Conditions of Release' leads at 21.6%, followed by Order-Other (17.9%).

Significance

The extreme filing-type concentration in AUTH_Judith-Cole (85.4% a single type) and AUTH_Amanda-Burg (94.7% top-3) indicates that the authorship attribute does not select broadly across document types — it identifies a specific role in a specific procedural pipeline. This finding constrains the interpretation of these groups in later parts of the series.

Connecting Context

Filing type distribution informs the text analysis in Part 5 (children_doc_strings). Groups with high type-concentration will produce more uniform text corpora, enabling tighter template-matching analysis. Groups with diverse filing types (META_Created-after-eFile) will require type-stratified analysis in Part 5.

Finding 4: Case Type Composition

Background

The case_type field identifies the court level and case category (CR = criminal, MH = mental health, MN-COA = Minnesota Court of Appeals, MN-SC = Minnesota Supreme Court, GC = guardianship/conservatorship). Distribution across case types reveals whether groups are confined to one judicial tier or span multiple levels.

Findings

Group	CR %	MN-COA %	MN-SC %	GC %	Notes
META_Created-after-eFile	**99.7%**	—	—	0.3% (GC)	2 GC docs in 654 CR
META_ESolutions-Signature	**100%**	—	—	—	Exclusively criminal
META_MSIP	14.7%	**79.4%**	5.9%	—	**Only group spanning 3 court levels**
META_Signed-after-eFile	**100%**	—	—	—	Exclusively criminal
AUTH_Alisha-Nehring	**100%**	—	—	—	Exclusively criminal
AUTH_Amanda-Burg	**100%**	—	—	—	Exclusively criminal
AUTH_Judith-Cole	**100%**	—	—	—	Exclusively criminal
AUTH_Megan-Larison-DHS	**100%**	—	—	—	Exclusively criminal

Significance

META_MSIP is the only group that spans multiple court levels (COA + SC + District). Every other group is 100% (or 99.7%) district-court criminal (CR) filings. This structural uniqueness reinforces META_MSIP's status as a distinct category requiring separate analytical treatment in subsequent parts. The 5 CR-type documents within META_MSIP are the bridge point between the appellate and district-court contexts of that group.

Connecting Context

Case type homogeneity across 7 of 8 groups simplifies cross-group comparisons in Parts 2–5: analysts can treat all non-MSIP groups as operating within the same judicial tier. META_MSIP must be handled as a separate stratum in any analysis requiring case-type normalization.

Finding 5: Temporal Range & Activity Patterns

Background

Temporal range analysis establishes when each group was active, how long it spans, and whether activity is continuous or episodic. This contextualizes findings in Parts 2–5 and enables detection of temporal clustering — cases where all group activity concentrates in a narrow window.

Findings

Group	First Filing	Last Filing	Span (days)	Span (yrs)	Active Months	Avg Doc/Mo	Peak Month
META_Created-after-eFile	2017-05-23	2025-05-29	**2,928**	8.0 yrs	73	9.0	2022-04 (38)
META_ESolutions-Signature	2017-09-13	2025-04-03	**2,759**	7.6 yrs	46	2.9	2023-05 (14)
META_MSIP	2025-04-03	2025-08-22	**141**	**0.4 yrs**	5	6.8	2025-06 (9)
META_Signed-after-eFile	2018-08-28	2024-07-15	2,148	5.9 yrs	14	1.4	2023-04 (3)
AUTH_Alisha-Nehring	2019-07-31	2024-07-15	1,811	5.0 yrs	15	1.9	2019-10 (4)
AUTH_Amanda-Burg	2021-08-30	2023-08-24	724	2.0 yrs	13	5.8	2022-11 (16)
AUTH_Judith-Cole	2017-02-21	2022-12-20	2,128	5.8 yrs	30	4.1	2022-02 (22)
AUTH_Megan-Larison-DHS	2019-09-05	2021-01-25	508	1.4 yrs	**3**	6.7	2020-06 (12)

Key temporal observations:

- META_MSIP: The most compressed group — a 141-day window entirely within 2025. Zero MSIP documents exist before April 3, 2025 in this corpus. This represents an abrupt, recently-emerged phenomenon relative to all other groups.
- AUTH_Megan-Larison-DHS: Only 3 active months in a 508-day span, meaning 12 of 20 documents (60%) appeared in a single month (June 2020). Extremely concentrated burst activity.
- META_Created-after-eFile and META_ESolutions-Signature: Both groups show broadly continuous activity spanning 7–8 years, suggesting persistent systemic properties rather than discrete events.

- AUTH_Judith-Cole ends in December 2022; AUTH_Amanda-Burg ends in August 2023. Neither group has activity after their respective end dates, potentially indicating cessation of the authoring role.
- Temporal overlap: META_Created-after-eFile and META_ESolutions-Signature are the only groups active in 2017, establishing them as the earliest-appearing classification criteria.

Significance

The temporal compression of META_MSIP (141 days, beginning April 3, 2025) and AUTH_Megan-Larison-DHS (3 active months) contrasts sharply with the 7–8 year spans of the META groups. This temporal layering suggests that MSIP labeling and DHS correspondence are discrete, bounded phenomena, while the metadata anomalies captured by the META groups are ongoing systemic properties of the document production pipeline.

Connecting Context

Part 2 (hash analysis) will benefit from the temporal data here to contextualize when identical hash patterns appeared and whether they cluster in the same windows as group activity peaks. The chart-ready monthly data is provided in Appendix A5 for visualization.

Finding 6: Cluster & Case Footprint

Background

Each document in the corpus is associated with a defendant cluster (a normalized grouping of one defendant's cases) and a case. Cluster footprint analysis reveals whether a group's documents are concentrated in a few defendants' cases or distributed broadly across the corpus.

Findings

Cluster density: META_Created-after-eFile spans 63 clusters — the broadest footprint. META_Signed-after-eFile spans 16 clusters (one per case), suggesting each cluster has exactly one qualifying document. AUTH_Megan-Larison-DHS is concentrated in just 2 clusters (AESHA OSMAN and IFRAH HASSAN) across 6 cases.

TABLE F6-1: Top-3 Clusters by Document Count (selected groups)

Group	Rank	Cluster	Cluster ID	Docs	Cases
META_Created-after-eFile	1	MAKIS LANE	76	**62**	7
META_Created-after-eFile	2	TERRELL JOHNSON	14	**57**	9
META_Created-after-eFile	3	Lucas Kraskey	19	**54**	12
META_ESolutions-Signature	1	DENNIS BARRY	87	**11**	3
META_ESolutions-Signature	2	AESHA OSMAN	80	**9**	5
META_ESolutions-Signature	3	MATTHEW GUERTIN	1570	**8**	1
META_MSIP	1	(No cluster — appellate)	—	**28**	26
META_MSIP	2	MATTHEW GUERTIN	1570	**5**	2
META_Signed-after-eFile	1	MATTHEW GUERTIN	1570	**3**	1
AUTH_Alisha-Nehring	1	AESHA OSMAN (tie)	80	**4**	4
AUTH_Alisha-Nehring	1	IFRAH HASSAN (tie)	230	**4**	2
AUTH_Judith-Cole	1	MICHAEL HOWARD	1	**39**	20
AUTH_Amanda-Burg	1	TERRELL JOHNSON	14	**16**	8
AUTH_Megan-Larison-DHS	1	AESHA OSMAN	80	**12**	4
AUTH_Megan-Larison-DHS	2	IFRAH HASSAN	230	**8**	2

Cross-group cluster nexus: The following clusters appear in the most groups simultaneously:

ID	Cluster Name	Groups Present	Groups
14	TERRELL JOHNSON	6 of 8	AUTH_AN, AUTH_AB, AUTH_JC, META_CreAfE, META_ESol, META_SigAfE
80	AESHA OSMAN	6 of 8	AUTH_AN, AUTH_AB, AUTH_JC, AUTH_DHS, META_CreAfE, META_ESol
230	IFRAH HASSAN	6 of 8	AUTH_AN, AUTH_JC, AUTH_DHS, META_CreAfE, META_ESol, META_SigAfE
1730	RASHEED RICHARDSON	6 of 8	AUTH_AN, AUTH_AB, AUTH_JC, META_CreAfE, META_ESol, META_SigAfE

Additionally, 8 clusters appear in exactly 5 of the 8 groups, and 10 clusters appear in exactly 4 groups. The pattern shows that a small set of defendants' cases concentrates across nearly all classification dimensions simultaneously.

META_ESolutions-Signature includes MATTHEW GUERTIN (cluster 1570) as its third-highest cluster at 8 documents. MATTHEW GUERTIN is the #1 cluster for both META_MSIP (5 docs, 2 cases) and META_Signed-after-eFile (3 docs, 1 case).

Significance

The four six-group nexus clusters represent defendants whose case files satisfy the maximum number of classification criteria simultaneously. AESHA OSMAN and TERRELL JOHNSON appear in 6 of 8 groups and are the dominant clusters for both META and AUTH groups. MATTHEW GUERTIN — the report author's cluster — ranks in the top 3 for three of the four META groups and is the only defendant cluster concentrated in both META_MSIP and META_Signed-after-eFile simultaneously.

Connecting Context

Cluster-level analysis will be central to Parts 2–5. The cross-group cluster nexus identified here defines the 'highest-density' defendants that should receive priority attention in subsequent forensic phases. AUTH_Megan-Larison-DHS's exclusive concentration in AESHA OSMAN and IFRAH HASSAN clusters directly connects this AUTH group to the same defendants who appear most prominently in the META groups.

Finding 7: Document Complexity Profile (Hashpack Metrics)

Background

The hashpack table provides document-level measurements derived from PDF structural analysis: page count, file size (bytes), and stream count. These metrics characterize the structural complexity of each group's documents and can distinguish simple single-page administrative notices from complex multi-page signed orders.

Findings

All 1,043 documents have hashpack companions (100% coverage across all 8 groups). The following table summarizes key metrics:

Group	Avg Pages	Med Pages	Min Pg	Max Pg	Avg Size (KB)	Avg Streams	Notes
META_Created-after-eFile	2	1	1	**36**	406	12.8	—
META_ESolutions-Signature	2.6	2	1	**27**	472	**25.1**	High streams (25.1)
META_MSIP	4	3	1	20	259	16.7	—
META_Signed-after-eFile	1.9	1	1	5	**993**	**27.4**	Largest avg file (993 KB)
AUTH_Alisha-Nehring	6.2	5	1	**27**	400	20.5	—
AUTH_Amanda-Burg	2.5	2	2	3	219	12.1	Tightest pg range [2–3]
AUTH_Judith-Cole	5.8	6	3	7	316	24	Tightest pg range [3–7]
AUTH_Megan-Larison-DHS	2	2	1	2	231	9.7	Fewest streams (9.7)

- META_Signed-after-eFile: Largest average file size at 993 KB — more than double any other group. Despite a median of only 1 page, these documents contain embedded content that inflates file size significantly.
- AUTH_Judith-Cole and AUTH_Amanda-Burg: Both groups have the tightest page-count ranges (Cole: 3–7 pages; Burg: 2–3 pages), indicating template-consistent document production.
- META_ESolutions-Signature and META_Signed-after-eFile: Both groups have above-average stream counts (25.1 and 27.4), consistent with documents containing multiple embedded signature objects, images, and binary attachments.
- META_Created-after-eFile: The lowest average streams (12.8) and median of 1 page — consistent with its predominantly administrative/notice document composition.

Significance

The anomalously large file size of META_Signed-after-eFile documents (993 KB average for 1-page median documents) is a structural signature requiring investigation in Parts 2 and 3. Large file size with low page count typically indicates substantial embedded binary content — consistent with large embedded signature objects or image payloads. This aligns with the group's definition (signed after e-file) and the presence of cryptographic signature objects.

Connecting Context

The stream-count data here provides baseline complexity profiles for hash analysis in Parts 2–3. The tightly bounded page ranges of AUTH_Judith-Cole (3–7) and AUTH_Amanda-Burg (2–3) will enable precise template-detection in Part 5 text analysis.

Finding 8: Multi-Case Filing Detection

Background

A document filed into multiple distinct cases would share an identical doc_sha256 hash across more than one case_uid in the children table. This analysis tests whether any cohort document is a binary-identical PDF attributed to multiple cases simultaneously — a potential indicator of document re-use or template deployment across cases.

Findings

Result: Zero cross-case SHA256 collisions detected. No evidence_uid in any of the 8 cohort groups has a doc_sha256 value that appears under a different case_uid anywhere in the children table. All 1,043 cohort documents are unique binary artifacts attributed exclusively to their respective cases.

Group	Multi-Case Docs	% of Group
META_Created-after-eFile	0	0.0%
META_ESolutions-Signature	0	0.0%
META_MSIP	0	0.0%
META_Signed-after-eFile	0	0.0%
AUTH_Alisha-Nehring	0	0.0%
AUTH_Amanda-Burg	0	0.0%
AUTH_Judith-Cole	0	0.0%
AUTH_Megan-Larison-DHS	0	0.0%

Note: The children_case_set table was examined for this analysis. It was found to contain collection-set membership labels (values: 'A', 'B', 'GUERTIN', 'SRC_H_*', etc.) rather than cross-case filing data. The SHA256-based methodology above is the correct test for binary-identical cross-case filing.

Significance

The absence of cross-case SHA256 collisions establishes that each cohort document is a distinct binary object. Document re-use across cases, if it exists in this corpus, operates through template-based generation producing structurally similar but not binary-identical PDFs — a methodology that requires text-level analysis (Part 5) rather than hash-level detection.

Connecting Context

This null finding is a clean boundary condition for Parts 2–3: hash-level analysis in those parts can focus on internal object hashes (fonts, images, signature objects) rather than document-level identity. Template-based similarity, rather than exact copy detection, is the appropriate framing for cross-case document comparison in this corpus.

LIMITATIONS & ALTERNATIVE EXPLANATIONS

- This analysis is based on the MCRO forensic database as of February 28, 2026. The corpus covers documents retrieved during specific scrape sessions; documents filed or updated after those sessions are not represented.
- The children_doc_set table column name was found to differ from the schema reference ('value' vs 'doc_set'). This discrepancy may indicate the schema reference is based on an earlier schema version. The live database column was used throughout.
- META_MSIP cluster analysis is incomplete: 28 of 34 MSIP documents (82.4%) have null cluster_id, reflecting appellate filings that lack district-court cluster assignments. These documents cannot be cross-referenced to defendant clusters in the district court data.
- Multi-case filing analysis is limited to binary-identical PDFs (matching doc_sha256). Template-based document re-use producing structurally similar but non-identical PDFs would not be detected by this method; such analysis requires the text-level comparison deferred to Part 5.
- Group definitions (the 8 doc_set values) are not self-documenting from the database alone. Their precise definitions — what conditions cause a document to be assigned to each group — are external business logic not stored in the children_doc_set table. This report characterizes each group's statistical properties but does not independently verify the classification rules.
- Hashpack coverage is 100%, but hashpack metrics available in the live table differ from the schema reference (n_pages and fp_streams_other_stream_count are present; page_count, object_count, font_count, stream_count as documented are not). Document-level complexity metrics in Finding 7 use the available columns.
- Temporal analysis is based on filing_date from the children table, which reflects the official filing date on the document. XMP creation dates and download timestamps, which differ for some documents (as documented in the Initial Forensic Analysis Report), are not used in this part's temporal analysis.

Plausible Alternative Explanations (Unresolved; Not Proven by This Report)

The following are offered as unresolved possibilities. None is endorsed or refuted by this report's data.

- AUTH groups may reflect document examiner role assignments in a court document management system, where specific examiners are assigned to specific case types or judicial officers, creating natural clustering without any anomalous intent.
- META_Created-after-eFile's 8-year span and 656-document count may reflect a legitimate and evolving e-filing system workflow in which some documents are processed, reformatted, or re-timestamped after their initial e-file date as part of standard archiving procedures.
- The temporal compression of META_MSIP (141 days in 2025) may reflect a planned deployment of Microsoft 365 enterprise labeling policy to the Minnesota court system, beginning April 2025 with rollout to appellate courts within days.
- AUTH_Megan-Larison-DHS's concentration in AESHA OSMAN and IFRAH HASSAN cases may reflect these cases' specific procedural requirements (e.g., DHS involvement in mental health commitment proceedings), rather than any anomalous targeting.

RECOMMENDATIONS FOR INDEPENDENT VERIFICATION

- Reproduce the Anchor CTE (Appendix A1) against the live Supabase database (project ID: ibfmjtwahkwqzcmeyqii, region us-west-2) to confirm all 1,043 cohort documents and their group assignments. Note: use column name 'value' (not 'doc_set') in the children_doc_set table.
- Verify the column discovery finding: run SELECT column_name FROM information_schema.columns WHERE table_name = 'children_doc_set' to confirm the live column name before executing any queries.
- Cross-reference the six triple-membership documents (listed in Finding 2, Table F2-1) against MCRO directly using the case IDs embedded in the evidence_uid values to verify their filing dates, types, and case assignments.
- For META_MSIP: request from the Minnesota Judicial Branch or Microsoft the MSIP tenant registration associated with Site ID 8cf8312b-4c34-4b6f-9dee-c56512a7510f to independently verify the organizational origin of MSIP labels.
- Verify the AUTH group definitions by requesting the classification logic from the database administrator — specifically, the criteria by which documents are assigned to each named author group in children_doc_set.
- For the 18-document META_ESolutions-Signature ∩ META_Signed-after-eFile intersection, retrieve and examine each document's PDF signature structure (available via STORJ_BIN links in the Appendix) to verify the sign timestamp vs. e-file date relationship.
- Run all SQL in the Appendix against the live database and compare results to the figures in this report. Any divergence in row counts should be documented and reported to the database administrator.

APPENDIX | REPRODUCIBLE SQL QUERIES

All SQL queries used in this report are reproduced below in execution order. Each query corresponds to a numbered analysis in the Methods and Findings sections. Queries use the confirmed live column name 'value' (not 'doc_set') in children_doc_set. All queries are SELECT-only.

A1 — Anchor CTE / Cohort Definition

```
-- NOTE: Live column is 'value' (not 'doc_set' as in schema reference)
-- Confirmed via: SELECT column_name FROM information_schema.columns
--                WHERE table_name = 'children_doc_set';

WITH doc_set_cohort AS (
  SELECT
    cds.evidence_uid,
    cds.value AS doc_set,
    c.case_uid,
    c.cluster_id,
    c.cluster_name,
    c.filing_type,
    c.filing_date,
    c.case_type,
    c.filename,
    c.me_filename,
    c.doc_sha256
  FROM children_doc_set cds
  JOIN children c ON c.evidence_uid = cds.evidence_uid
  WHERE cds.value IN (
    'META_ESolutions-Signature',
    'META_Created-after-eFile',
    'META_MSIP',
    'META_Signed-after-eFile',
    'AUTH_Alisha-Nehring',
    'AUTH_Amanda-Burg',
    'AUTH_Judith-Cole',
    'AUTH_Megan-Larison-DHS'
  )
)
```

A2 — Cohort Size Census (Analysis 1)

```
WITH doc_set_cohort AS ( /* Anchor CTE from A1 */ )
SELECT
  doc_set,
  COUNT(*) AS doc_count,
  COUNT(DISTINCT evidence_uid) AS distinct_docs,
  COUNT(DISTINCT case_uid) AS distinct_cases,
  COUNT(DISTINCT cluster_id) AS distinct_clusters
FROM doc_set_cohort
GROUP BY doc_set
ORDER BY CASE WHEN doc_set LIKE 'META_%' THEN 0 ELSE 1 END, doc_set;
```

A3 — Multi-Group Membership Overview (Analysis 2)

```
WITH doc_set_cohort AS (
  SELECT evidence_uid, value AS doc_set
  FROM children_doc_set
  WHERE value IN ( /* 8 group values */ )
),
membership AS (
  SELECT evidence_uid,
    COUNT(DISTINCT doc_set) AS group_count,
    BOOL_OR(doc_set LIKE 'META_%') AS in_meta,
    BOOL_OR(doc_set LIKE 'AUTH_%') AS in_auth
  FROM doc_set_cohort
  GROUP BY evidence_uid
)
SELECT
  COUNT(*) AS total_unique_docs,
  SUM(CASE WHEN group_count = 1 THEN 1 ELSE 0 END) AS exclusive_one_group,
  SUM(CASE WHEN group_count = 2 THEN 1 ELSE 0 END) AS in_two_groups,
  SUM(CASE WHEN group_count = 3 THEN 1 ELSE 0 END) AS in_three_groups,
  SUM(CASE WHEN group_count >= 4 THEN 1 ELSE 0 END) AS in_four_plus,
  SUM(CASE WHEN in_meta AND NOT in_auth THEN 1 ELSE 0 END) AS meta_only,
  SUM(CASE WHEN in_auth AND NOT in_meta THEN 1 ELSE 0 END) AS auth_only,
  SUM(CASE WHEN in_meta AND in_auth THEN 1 ELSE 0 END) AS meta_and_auth
FROM membership;
```

A4 — 8×8 Co-Occurrence Matrix (Analysis 2)

```
WITH doc_set_cohort AS (
  SELECT evidence_uid, value AS doc_set
  FROM children_doc_set WHERE value IN ( /* 8 group values */ )
)
SELECT
  a.doc_set AS group_a,
  b.doc_set AS group_b,
  COUNT(DISTINCT a.evidence_uid) AS co_occurrence_count
FROM doc_set_cohort a
JOIN doc_set_cohort b ON a.evidence_uid = b.evidence_uid
WHERE a.doc_set <= b.doc_set
GROUP BY a.doc_set, b.doc_set
ORDER BY a.doc_set, b.doc_set;
```

A5 — Monthly Filing Volume per Group (Analysis 5)

```
WITH doc_set_cohort AS (
  SELECT cds.value AS doc_set, c.filing_date
  FROM children_doc_set cds
  JOIN children c ON c.evidence_uid = cds.evidence_uid
  WHERE cds.value IN ( /* 8 group values */ )
)
SELECT
  doc_set,
  TO_CHAR(filing_date, 'YYYY-MM') AS yr_mo,
  COUNT(*) AS doc_count
FROM doc_set_cohort
WHERE filing_date IS NOT NULL
GROUP BY doc_set, TO_CHAR(filing_date, 'YYYY-MM')
ORDER BY doc_set, yr_mo;
```

A6 — Top-5 Clusters Per Group (Analysis 6)

```
WITH doc_set_cohort AS (
  SELECT cds.evidence_uid, cds.value AS doc_set,
    c.cluster_id, c.cluster_name, c.case_uid
  FROM children_doc_set cds
  JOIN children c ON c.evidence_uid = cds.evidence_uid
  WHERE cds.value IN ( /* 8 group values */ )
),
ranked_clusters AS (
  SELECT doc_set, cluster_id, cluster_name,
    COUNT(DISTINCT evidence_uid) AS doc_count,
    COUNT(DISTINCT case_uid) AS case_count,
    RANK() OVER (PARTITION BY doc_set
      ORDER BY COUNT(DISTINCT evidence_uid) DESC) AS rnk
  FROM doc_set_cohort
  GROUP BY doc_set, cluster_id, cluster_name
)
SELECT doc_set, cluster_id, cluster_name, doc_count, case_count, rnk
FROM ranked_clusters WHERE rnk <= 5
ORDER BY doc_set, rnk;
```

A7 — Cross-Group Cluster Nexus (Analysis 6)

```
WITH doc_set_cohort AS (
  SELECT cds.value AS doc_set, c.cluster_id, c.cluster_name
  FROM children_doc_set cds
  JOIN children c ON c.evidence_uid = cds.evidence_uid
  WHERE cds.value IN ( /* 8 group values */ )
  AND c.cluster_id IS NOT NULL
)
SELECT cluster_id, cluster_name,
  COUNT(DISTINCT doc_set) AS group_count,
  STRING_AGG(DISTINCT doc_set, ', ' ORDER BY doc_set) AS groups_present
FROM doc_set_cohort
GROUP BY cluster_id, cluster_name
HAVING COUNT(DISTINCT doc_set) >= 4
ORDER BY group_count DESC, cluster_id;
```

A8 — Hashpack Complexity Metrics (Analysis 7)

```
WITH doc_set_cohort AS (
  SELECT cds.evidence_uid, cds.value AS doc_set
  FROM children_doc_set cds
  WHERE cds.value IN ( /* 8 group values */ )
)
SELECT
  dsc.doc_set,
  COUNT(*) AS total_docs,
  SUM(CASE WHEN h.evidence_uid IS NOT NULL THEN 1 ELSE 0 END) AS docs_with_hashpack,
  ROUND(AVG(h.n_pages),1) AS avg_pages,
  PERCENTILE_CONT(0.5) WITHIN GROUP (ORDER BY h.n_pages) AS median_pages,
  MIN(h.n_pages) AS min_pages,
  MAX(h.n_pages) AS max_pages,
  ROUND(AVG(h.size_bytes/1024.0),0) AS avg_size_kb,
  ROUND(AVG(h.fp_streams_other_stream_count),1) AS avg_streams
FROM doc_set_cohort dsc
LEFT JOIN hashpack h ON h.evidence_uid = dsc.evidence_uid
GROUP BY dsc.doc_set
ORDER BY CASE WHEN dsc.doc_set LIKE 'META_%' THEN 0 ELSE 1 END, dsc.doc_set;
```

A9 — Multi-Case SHA256 Filing Detection (Analysis 8)

```
WITH doc_set_cohort AS (
  SELECT DISTINCT cds.evidence_uid, cds.value AS doc_set,
    c.doc_sha256, c.case_uid
  FROM children_doc_set cds
  JOIN children c ON c.evidence_uid = cds.evidence_uid
  WHERE cds.value IN ( /* 8 group values */ )
),
sha_multi_case AS (
  SELECT doc_sha256, COUNT(DISTINCT case_uid) AS case_count
  FROM children
  WHERE doc_sha256 IN (SELECT DISTINCT doc_sha256 FROM doc_set_cohort)
  GROUP BY doc_sha256
  HAVING COUNT(DISTINCT case_uid) > 1
)
SELECT dsc.doc_set,
  COUNT(DISTINCT CASE WHEN smc.doc_sha256 IS NOT NULL
    THEN dsc.evidence_uid END) AS multi_case_doc_count,
  COUNT(DISTINCT dsc.evidence_uid) AS group_total
FROM doc_set_cohort dsc
LEFT JOIN sha_multi_case smc ON smc.doc_sha256 = dsc.doc_sha256
GROUP BY dsc.doc_set;
```

A10 — Python Visualization Code (Timeline + Complexity)

```
import matplotlib.pyplot as plt
import matplotlib.patches as mpatches
import pandas as pd
import numpy as np

# --- Data (from Appendix A5 live query results) ---
# Load monthly_data from A5 query results as DataFrame:
# columns: doc_set, yr_mo, doc_count

COLORS = {
  'META_Created-after-eFile': '#FFC000',
  'META_ESolutions-Signature': '#2E75B6',
  'META_MSIP': '#70AD47',
  'META_Signed-after-eFile': '#ED7D31',
  'AUTH_Alisha-Nehring': '#9E3B6A',
  'AUTH_Amanda-Burg': '#1F4E79',
  'AUTH_Judith-Cole': '#7030A0',
  'AUTH_Megan-Larison-DHS': '#375623',
}

# Fig 1: Timeline
fig, ax = plt.subplots(figsize=(14, 5))
for grp, grp_df in monthly_data.groupby('doc_set'):
  ax.plot(grp_df['yr_mo'], grp_df['doc_count'],
    label=grp, color=COLORS[grp], linewidth=1.5, marker='o', markersize=3)
ax.set_title('Monthly Filing Volume per Doc-Set Group', fontsize=14, fontweight='bold')
ax.set_xlabel('Month'); ax.set_ylabel('Doc Count')
ax.legend(fontsize=7, loc='upper left'); plt.tight_layout()
plt.savefig('fig1_timeline.png', dpi=150)

# Fig 2: Complexity radar
categories = ['Avg Pages', 'Avg Streams', 'Avg Size (100KB)']
N = len(categories)
angles = np.linspace(0, 2*np.pi, N, endpoint=False).tolist()
angles += angles[:1]
fig, ax = plt.subplots(figsize=(8,8), subplot_kw=dict(polar=True))
# normalize and plot each group...
plt.savefig('fig2_radar.png', dpi=150)
```

End of Appendix. All queries verified against live database project ibfmjtwahkwqzcmeyqii on 2026-03-05.