exterro®

Data Risk Management

BENCHMARK METRICS

FTK SUITE 8.2 SP2

Table of Contents

www.exterro.com   2

About Exterro

Exterro was founded with the simple vision that applying the concepts of process optimization and data science to how companies manage digital information and respond to litigation would drive more successful outcomes at a lower cost. We remain committed to this vision today. We deliver a fully integrated Data Risk Management platform that enables our clients to address their privacy, regulatory, compliance, digital forensics, and litigation risks more effectively and at lower costs. We provide software solutions that help some of the world's largest organizations, law enforcement and government agencies work smarter, more efficiently, and support the Rule of Law.

1   Processing Metrics

The processing count and time of various evidence in FTK 8.2 SP2 version are recorded.

AWS Machine Configuration:

The metrics are recorded with an AWS machine with the following configuration:

- **Server Versions:** Windows Server 2019 datacenter
- **Processor:** Intel(R) Xeon(R) Platinum 8124M CPU @ 3.00GHz
- **System Type:** 64 bit
- **RAM:** 32 GB
- **Instance Type:** C5.4.XLarge (16 core processor)

www.exterro.com

Standalone:

- All the recommended installers are installed in a single AWS machine and the corresponding test results are recorded.

Distributed Processing Manager:

- Exterro FTK application is installed in a separate AWS machine.
- The Exterro Database is hosted in a separate AWS machine.
- Distributed Processing Manager (DPM) is installed in a separate machine.
- 3 Distributed Processing Engines (DPEs) are installed in 3 individual AWS machines.

The below mentioned metrics are recorded based with evidence in a separate shared AWS machine for FTK 8.2 SP2 (SQL Server) which was accessed via shared path.

Evidence Name	Standalone	Distributed (3 DPE's)
	Processing Count & Time (HH:MM:SS)	
Sheriff Taylor	Enumerated: 757196 Processed: 757196 Indexed: 267601 Job time: 00:37:08	Enumerated: 757196 Processed: 757196 Indexed: 267601 Job time: 00:12:21
Cox 100 GB	Enumerated: 1635999 Processed: 1635999 Indexed: 1408951 Job time: 02:30:29	Enumerated: 1635999 Processed: 1635999 Indexed: 1408951 Job time: 00:52:47
LG E975	Enumerated: 8674 Processed: 8674 Indexed: 4316 Job time: 00:05:54	Enumerated: 8674 Processed: 8674 Indexed: 4316 Job time: 00:05:09
Red MI Note 3	Enumerated: 69422 Processed: 69422 Indexed: 40824 Job time: 00:09:24	Enumerated: 69422 Processed: 69422 Indexed: 40824 Job time: 00:10:20

Evidence Name	Standalone	Distributed (3 DPE's)
	Processing Count & Time (HH:MM:SS)	
Macmini_unlocked	Enumerated: 358191 Processed: 358191 Indexed: 251790 Job time: 00:23:54	Enumerated: 358191 Processed: 358191 Indexed: 251790 Job time: 00:08:43
mojave2_e01_image.E01	Enumerated: 679429 Processed: 679429 Indexed: 620879 Job time: 00:56:02	Enumerated: 679429 Processed: 679429 Indexed: 620879 Job time: 00:24:02
Mike-37	Enumerated: 2239729 Processed: 0 Indexed: 0 Job time: 01:01:44	Enumerated: 2239729 Processed: 0 Indexed: 0 Job time: 01:03:53
Bigsur-vhd-0309-field	Enumerated: 35310 Processed: 0 Indexed: 0 Job time: 00:01:40	Enumerated: 35310 Processed: 0 Indexed: 0 Job time: 00:01:41
Mac-Monterary-Peripheral	Enumerated: 89187 Processed: 0 Indexed: 0 Job time: 00:04:55	Enumerated: 89187 Processed: 0 Indexed: 0 Job time: 00:04:42
Samsung S10 Lite	Enumerated: 384230 Processed: 384230 Indexed: 299459 Job time: 01:28:32	Enumerated: 384230 Processed: 384230 Indexed: 299459 Job time: 01:01:34
Google Pixel 13 A (Android 10)	Enumerated: 277396 Processed: 277396 Indexed: 225497 Job time: 00:36:55	Enumerated: 277396 Processed: 277396 Indexed: 225497 Job time: 00:24:00

www.exterro.com

Evidence Name	Standalone	Distributed (3 DPE's)
	Processing Count & Time (HH:MM:SS)	
iPhone 12 (Grayshift)	Enumerated: 521381 Processed: 521381 Indexed: 452639 Job time: 00:55:55	Enumerated: 521381 Processed: 521381 Indexed: 452639 Job time: 00:30:16
iOS_13_4_1	Enumerated: 377674 Processed: 377674 Indexed: 343415 Job time: 00:49:34	Enumerated: 377674 Processed: 377674 Indexed: 343415 Job time: 00:33:06
Android 13	Enumerated: 145561 Processed: 145561 Indexed: 113501 Job time: 00:30:42	Enumerated: 145561 Processed: 145561 Indexed: 113501 Job time: 00:27:59
EnronPST_76GB	Enumerated: 1719577 Processed: 1719577 Indexed: 1694542 Job time: 02:02:02	Enumerated: 1719577 Processed: 1719577 Indexed: 1694542 Job time: 01:08:43
Grayshift iOS-13.0	Enumerated: 462400 Processed: 462400 Indexed: 441433 Job time: 00:39:18	Enumerated: 462400 Processed: 462400 Indexed: 441433 Job time: 00:20:51
MVS2025_Magnet_iOS	Enumerated: 193520 Processed: 193520 Indexed: 172926 Job time: 00:21:04	Enumerated: 193520 Processed: 193520 Indexed: 172926 Job time: 00:11:01
CategoryMBOX	Enumerated: 441711 Processed: 441711 Indexed: 358269 Job time: 04:33:17	Enumerated: 441711 Processed: 441711 Indexed: 358269 Job time: 01:23:02

2   Standalone Performance Benchmark Metrics

2.1   Performance Benchmark environment and configuration

A series of performance tests were executed to determine the application load time response when bulk users are accessing the application. A maximum of 10 users were made to log in to the application simultaneously with a ramp-up period of 3 seconds and randomly hit all the Manage pages.

The load details of the database and the server is provided below:

#	Name of the Entity	Active Count
1	Case	2
2	Review Page	10,834,519

Server	Instance type/processor	Drive			RAM Size	Operating System
		Size	Type	R/W Speed		
Application Server & PostgreSQL Database Server	C5.4.XLarge 16 core processor	4.5 TB	SSD	16,000	32 GB	Windows Server 2019 (64 - bit OS)

2.1.1 Test Bed Set-up

1. The tests were performed on the below user preference settings in the application:

   - Manage Page View   : Table View
   - Results per page   : 100
   - Ramp-up   : 3 seconds

2. The performance scripts of the Manage pages were taken by triggering the APIs from an AWS machine (say Machine 1) and hitting the other AWS machine (say Machine 2). Here, Machine 1 consisted of the Performance Test scripts and Machine 2 consisted of Performance Test data.

2.1.2 AWS Machine Details

- Server Versions   : Windows Server 2019 Datacenter (64 – bit OS)
- RAM   : 32 GB
- Database Server   : PostgreSQL

Important: The metrics are recorded with database cache, partition table and index implementation. The database cache query is executed upon every successful upgrade and new installation.

Name of the Page	No. of users - 1	No. of users - 10
	Average Time Taken (in seconds)	
Manage Case	0.189	0.219
Review	35.4	13.309
Thumbnail View	1.744	1.699

2.2   Overview of Performance Fixes

1. Implementation of Partition Table makes the DB query execution faster.

    Note: The performance of Evidence Processing is dependent on the partition table.

2. Automatic execution of DB cache query upon every Upgrade or New Installation of Exterro FTK application in the following areas:

    -   Left pane Filters

    -   Review Page Loading

    -   Column filters

3. Scrutinizing the DB queries for

    -   Applying or removing of filters on Left Pane, Column Filters

    -   Automatic loading of Review page and Coding panel actions on review page.

4. Modifying applicable API calls querying to be taken from:

    -   Cache for counts

    -   Pagination

    -   Static filters

    -   Left pane filters

    -   Review Page Loading

    -   Column filters

5. New API calls for querying the counts on performing the search on the:

    -   Review page

    -   Evidence list operation

    -   'ItemDataGrid' data functions in separate threads

    -   Added an index on 'FileCategory' and 'EvidenceId'

6. Changes in properties files to support the restriction of Payload request in the API calls which take the necessary responses only.

7. Removing or modifying the default operators in the column filter for loading and applying Filter purposes.

8. Implementation of background job to filter the results and make the UI accessible at initial loading of the data.

9. The API calls are now modified to fetch the database cache instead of querying the database.

2.3   Test Scenarios

2.3.1   Single User Performance Metrics in FTK Central 8.2 SP2

The below time stamps (in seconds) are recorded for a single user with 1.5 million files and 10 million files in FTK Central 8.2 SP2 application (PostgreSQL database) with a ramp-up of 3 seconds:

Page Navigation:

Test Scenarios	10 Million Files	1.5 Million Files
	Average Time Taken for 1 User (In Seconds)	
Login	0.13	0.195
Manage Case List	0.189	0.219
Review Page	35.4	13.309
Not Viewed	12.584	0.537
Artifacts api	5.067	2.889
Evidence Explorer API	0.15	0.474
Pagination Next (List View)	0.212	0.202
Pagination Previous (List View)	0.196	0.189
Thumbnail View	1.744	1.699
Next Page (Thumbnail View)	0.203	0.205
Previous Page (Thumbnail View)	0.195	0.195
Jump to any Page (Thumbnail View)	0.253	0.239

Searches:

Test Scenarios	10 Million Files	1.5 Million Files
	Average Time Taken for 1 User (In Seconds)	
Basic Search > Boolean	2.314	0.387
Basic Search > Wildcard	1.826	0.229
Basic Search > All 3 combination	2.135	0.245
Adv. Search > Boolean	4.772	0.215
Adv. Search > Wildcard	2.67	0.236
Adv. Search > All 3 combination	2.781	0.213
Adv. Search > All 3 combination > Any include Related docs	3.248	0.23
Adv. Search > All 3 combination > Any More Options	2.76	0.223
Search query in stemming with the complex queries	3.2	0.214
Remove Text Search	0.386	0.402
Remove Adv Text Search (100 docs)	0.69	0.55

www.exterro.com

Quick Filters:

Test Scenarios	10 Million Files	1.5 Million Files
	Average Time Taken for 1 User (In Seconds)	
Quick Filter > Labeled Fields > Apply	0.328	0.227
Quick filter > Labeled Fields > Remove	0.218	0.198
Quick Filter > Checked Files > Apply	0.148	0.112
Quick Filter > Checked Files > Remove	0.2	0.306
Quick Filter > Toggle Bookmark or Reports Filter > Apply	0.155	0.211
Quick Filter > Toggle Bookmark or Reports Filter > Remove	0.207	0.212
Quick Filter > Ignorable > Apply	0.149	0.12
Quick Filter > Ignorable > Remove	0.206	0.194
Quick Filter> Internet favorites > Apply	0.219	0.116
Quick Filter > Internet favorites > Remove	0.205	0.193
Quick Filter > Privileged > Apply	0.213	0.118
Quick Filter > Privileged > Remove	0.206	0.21
Quick Filter > Remove Duplicates > Apply	0.212	0.226
Quick Filter > Remove Duplicates > Remove	0.198	0.225
Quick Filter > Deleted Files > Apply	0.294	0.122
Quick Filter > Deleted Files > Remove	0.205	0.303
Quick Filter > Carved Files> Apply	0.123	0.124
Quick Filter > Carved Files > Remove	0.203	0.429
Quick Filter > Encrypted Files > Apply	0.312	0.155
Quick Filter > Encrypted Files > Remove	0.207	0.202
Quick Filter > From Recycle Bin > Apply	0.206	0.159
Quick Filter > From Recycle Bin > Remove	0.208	0.206
Quick Filter > OCRed Files > Apply	0.126	0.116
Quick Filter > OCRed Files > Remove	0.204	0.3
Quick Filter > Bad Extension > Apply	0.215	0.195

Test Scenarios	10 Million Files	1.5 Million Files
	Average Time Taken for 1 User (In Seconds)	
Quick Filter > Bad Extension > Remove	0.301	0.194
Quick Filter > Hidden Files > Apply	0.214	0.122
Quick Filter > Hidden Files > Remove	0.197	0.197
Quick Filter > Email Attachment > Apply	0.228	0.171
Quick Filter > Email Attachment > Remove	0.201	0.194
Quick Filter > Geo Location> Apply	0.221	0.152
Quick Filter > Geo Location > Remove	0.204	0.198
Quick Filter > eDiscovery Refinement > Apply	0.252	0.331
Quick Filter > eDiscovery Refinement > Remove	0.348	0.233
Quick Filter > Notes and Bookmarks > Apply	-	-
Quick Filter > Notes and Bookmarks > Remove	-	-
Quick Filter > Containers > Apply	0.243	0.418
Quick Filter > Containers > Remove	0.226	0.32

www.exterro.com

Common Filters:

Test Scenarios	10 Million Files	1.5 Million Files
	Average Time Taken for 1 User (In Seconds)	
CommonFilter > Bookmarks > Load	5.389	0.075
CommonFilter > Bookmarks > Apply	0.18	0.152
CommonFilter > Bookmarks > Remove	0.313	0.187
CommonFilter > CerebrusSTG1 > Load	0.204	0.154
CommonFilter > Custodians > Load	0.038	0.035
CommonFilter > CustomField > Load	0.053	0.039
CommonFilter > DateAccessed > Load	0.052	0.043
CommonFilter > DateAccessed > 1 > Apply	0.255	0.199
CommonFilter > DateAccessed > 1 > Remove	0.197	0.191
CommonFilter > DateCreated > Load	0.063	0.048
CommonFilter > DateCreated > 1 > Apply	1.428	0.175
CommonFilter > DateCreated > 1 > Remove>	0.197	0.193
CommonFilter > DateModified > 1 > Load	0.063	0.042
CommonFilter > DateModified > 1 > Apply	1.266	0.43
CommonFilter > DateModified > 1 > Remove	0.215	0.194
CommonFilter > DocumentContent > ClusterTopic > Load	0.084	0.073
CommonFilter > DocumentContent > ClusterTopic > Apply	0.126	0.118
CommonFilter > DocumentContent > EmailAddress > Load	0.036	0.036
CommonFilter > DocumentContent > CCN > Load	0.037	0.036
CommonFilter > DocumentContent > PHNO > Load	0.04	0.035
CommonFilter > DocumentContent > SSN > Load	0.039	0.036
CommonFilter > Viewed > Load	12.459	0.251
CommonFilter > Viewed > NV > Apply	0.164	0.145
CommonFilter > Viewed > NV > Remove	0.205	0.296
CommonFilter > Viewed > V > Apply	0.161	0.144

Test Scenarios	10 Million Files	1.5 Million Files
	Average Time Taken for 1 User (In Seconds)	
CommonFilter > Viewed > V > Remove	0.206	0.194
CommonFilter > Status > Load	18.058	0.048
CommonFilter > Status > BadExt > Apply	0.214	0.196
CommonFilter > Status > BadExt > Remove	0.205	0.189
CommonFilter > Status > DelFiles > Apply	0.311	-
CommonFilter > Status > DelFiles > Remove	0.203	-
CommonFilter > Status > EmailAttachment > Apply	0.208	0.143
CommonFilter > Status > EmailAttachment > Remove	0.209	0.191
CommonFilter > Status > EmailRelatedItem > Apply	0.329	0.407
CommonFilter > Status > EmailRelatedItem > Remove	0.209	0.195
CommonFilter > Status > EmailReply > Apply	0.208	0.136
CommonFilter > Status > EmailReply > Remove	0.199	0.19
CommonFilter > Status > EncryptedFiles > Apply	0.212	0.145
CommonFilter >Status > EncryptedFiles > Remove	0.205	0.193
CommonFilter > Status > Recyclebin > Apply	0.217	0.152
CommonFilter > Status > Recyclebin > Remove	0.2	0.192
CommonFilter > Size > Load	5.776	0.048
CommonFilter > Size > Gigantic > Apply	0.218	0.158
CommonFilter > Size > Gigantic > Remove	0.324	0.19
CommonFilter >Size > Huge > Apply	0.208	0.296
CommonFilter > Size> Huge > Remove	0.199	0.192
CommonFilter > Size > Large > Apply	0.214	0.196
CommonFilter > Size > Large > Remove	0.34	0.192
CommonFilter > Size > Medium > Apply	0.217	0.37
CommonFilter > Size > Medium > Remove	0.203	0.196
CommonFilter > Size > Small > Apply	0.209	0.297
CommonFilter > Size > Small > Remove	0.315	0.191

www.exterro.com

Test Scenarios	10 Million Files	1.5 Million Files
	Average Time Taken for 1 User (In Seconds)	
CommonFilter > Size > Tiny > Apply	0.316	0.201
CommonFilter > Size > Tiny > Remove	0.204	0.197
CommonFilter > Size > Empty > Apply	0.201	0.191
CommonFilter > Size > Empty > Remove	0.197	0.285
CommonFilter > Language > Load	0.094	0.08
CommonFilter > ObjectTypes > Load	1.986	0.043
CommonFilter > ObjectTypes > CaseOrganizer > Apply	0.215	-
CommonFilter > ObjectTypes > CaseOrganizer > Remove	0.41	-
CommonFilter > ObjectTypes > Files & Email > Apply	0.467	0.19
CommonFilter > ObjectTypes > Files & Email > Remove	0.39	0.191
CommonFilter >ProductionSets > Load	13.566	0.048
CommonFilter > ProductionSets > Apply	0.321	0.2
CommonFilter > ProductionSets > Remove	0.204	0.186
CommonFilter > Labels > Load	0.072	0.076
CommonFilter > Labels > 1 > Apply	0.305	0.143
CommonFilter > Labels > 1 > Remove	0.2	0.259
CommonFilter > EmailDate > Load	-	0.051
CommonFilter > EmailDate > Received > Apply	-	0.195
CommonFilter > EmailDate > Received > Remove	0.089	0.201
CommonFilter > EmailDate > Sent > Apply	0.06	0.264
CommonFilter > EmailDate > Sent > Remove	0.066	0.205
CommonFilter > Extension > Load	0.06	0.297
CommonFilter > Extension > 1 > Apply	0.063	0.292
CommonFilter > Extension > 2 > Remove	24.136	0.198
CommonFilter > Labels > 2 > Apply	0.296	-
CommonFilter > Labels > 2 > Remove	0.342	-
CommonFilter > Issues > Load	0.299	0.08

Test Scenarios	10 Million Files	1.5 Million Files
	Average Time Taken for 1 User (In Seconds)	
CommonFilter > KFF > kff vendors > Load	0.205	0.097
CommonFilter > KFF> kff groups > Load	1.341	0.057
CommonFilter > KFF > kff status > Load	0.595	0.056
CommonFilter > KFF > kff sets > Load	0.203	0.059

Column Filters:

Test Scenarios	10 Million Files	1.5 Million Files
	Average Time Taken for 1 User (In Seconds)	
ColumnFilters>ObjectName>Apply	1.898	0.209
ColumnFilters>ObjectName>Remove	0.242	0.227
ColumnFilters>ObjectID>Apply	0.14	0.128
ColumnFilters>ObjectID>Remove	0.236	0.243
ColumnFilters>CreateDate>Load	19.02	2.302
ColumnFilters>CreateDate>Apply	0.17	0.157
ColumnFilters>CreateDate>Remove	0.245	0.33
ColumnFilters>LastModifiedDate>Load	24.222	2.639
ColumnFilters>LastModifiedDate>Apply	0.154	0.179
ColumnFilters>LastModifiedDate>Remove	0.246	0.229
ColumnFilters>FileType>Load	9.199	0.764
ColumnFilters>FileType>1>Apply	0.208	0.113
ColumnFilters>FileType>Remove	0.227	0.228
ColumnFilters>FileExt>Load	2.342	0.348
ColumnFilters>FileExt>Apply>	0.221	0.201
ColumnFilters>FileExt>Remove	0.239	0.23
ColumnFilters>Path>Apply	0.735	0.413
ColumnFilters>Path>Remove	0.239	0.53
ColumnFilters>MD5>Apply	0.148	0.14
ColumnFilters>MD5>Remove	0.222	0.225

Filter Artifacts:

Test Scenarios	10 Million Files	1.5 Million Files
	Average Time Taken for 1 User (In Seconds)	
Artifacts>Highlight>Enabled	2.102	2.206
Artifacts>Highlight>Excluded	0.301	0.268
Artifacts>Highlight>Removed	0.244	0.179
Artifacts>Multimedia>Enabled	0.319	0.403
Artifacts>Multimedia>Excluded	0.343	0.322
Artifacts>Multimedia>Removed	2.09	0.261
Artifacts>Mobile>Enabled	0.193	-
Artifacts>Mobile>Excluded	0.239	-
Artifacts>Mobile>Removed	1.95	-
Artifacts>Docs>Enabled	2.652	2.55
Artifacts>Docs>Excluded	0.584	0.684
Artifacts>Docs>Removed	0.237	0.357
Artifacts>Emails>Enabled	2.207	2.502
Artifacts>Emails>Excluded	0.317	0.352
Artifacts>Emails>Removed	0.237	0.358
Artifacts>OSFile>Enabled	2.435	0.303
Artifacts>OSFile>Excluded	0.341	0.346
Artifacts>OSFile>Removed	0.265	0.256
Artifacts>DB>Enabled	0.347	0.326
Artifacts>DB>Excluded	0.36	0.324
Artifacts>DB>Removed	0.256	0.231
Artifacts>GeoLocation>City>Load	0.344	0.083
Artifacts>GeoLocation>City>Enable	1.065	0.384
Artifacts>GeoLocation>City>Excluded	0.254	0.384
Artifacts>GeoLocation>City>Removed	0.3	0.224
Artifacts>Others>Enabled	0.406	0.263

www.exterro.com

Test Scenarios	10 Million Files	1.5 Million Files
	Average Time Taken for 1 User (In Seconds)	
Artifacts>Others>Excluded	0.347	0.496
Artifacts>Others>Removed	0.293	0.29
Artifacts>Internet Browser>Enabled	0.417	2.034
Artifacts> Internet Browser >Excluded	0.411	0.305
Artifacts> Internet Browser >Removed	0.236	0.349
Artifacts>Chatapps>Enabled	0.426	-
Artifacts>Chatapps>Excluded	0.295	-
Artifacts>Chatapps>Removed	0.228	-
Artifacts>System Summary>Enabled	0.727	-
Artifacts>System Summary>Excluded	0.835	-
Artifacts>System Summary>Removed	0.355	-

Evidence:

Test Scenarios	10 Million Files	1.5 Million Files
	Average Time Taken for 1 User (In Seconds)	
Evidence 1 > Apply	5.312	0.314
Evidence 1 > Exclude	0.198	0.455
Evidence 1 > Remove	0.266	0.209

Combination Filters 1:

Common Filters + Artifacts + Quick Filters

Test Scenarios	10 Million Files	1.5 Million Files
	Average Time taken for 1 User (In Seconds)	
Common filter : Object types > Files and Emails	0.436	0.466
Common filter + Artifacts >Chat application	0.211	
Common filter + Artifacts >Chat application , Documents	3.665	2.446
Common filter + Artifacts >Chat application , Documents , Internet & Browsers	0.525	0.492
Common filter + Artifacts >Chat application , Documents , Internet & Browsers, Emails	0.72	0.424
Common filter + Artifacts + Quick Filter applied on>Remove Containers	0.787	0.318
Common filter + Artifacts + Quick Filter applied on>Remove Containers, Remove Notes and Bookmark	-	-
Common filter + Artifacts + Quick Filter applied on>Remove Containers, Remove Notes and Bookmark, Remove Duplicates [Combination 1 Result] [Quick Filters, Common Filters, Artifacts]	0.718	0.265

Combination Filters 1 Exclusion

Test Scenarios	10 Million Files	1.5 Million Files
	Average Time taken for 1 User (In Seconds)	
Combination 1 + Document from Artifact	5.078	2.398

www.exterro.com

Combination Filters 2:

Common Filters + Artifacts + Evidence

Test Scenarios	10 Million Files	1.5 Million Files
	Average Time taken for 1 User (In Seconds)	
Common Filter>Size>Tiny	0.245	0.241
Common Filter>Size>Tiny, Gigantic	0.24	0.254
Common Filter>Size>Tiny, Gigantic, Small	0.341	0.256
Common Filter>Size>Tiny, Gigantic, Small, Empty	0.443	0.428
Common Filter + Artifacts filter> Document	0.433	0.447
Common Filter + Artifacts filter> Document, Email	0.585	-
Common Filter + Artifacts filter + Evidence Explorer>Evidence 1	0.594	-
Common Filter + Artifacts filter + Evidence Explorer>Evidence 1, Evidence 2	0.62	-
Common Filter + Artifacts filter + Evidence Explorer>Evidence 1, Evidence 2,Evidence 3	0.605	-
Common Filter + Artifacts filter + Evidence Explorer>Evidence 1, Evidence 2,Evidence 3, Evidence 4	0.245	0.241

Combination Filters 2 Exclusion

Test Scenarios	10 Million Files	1.5 Million Files
	Average Time taken for 1 User (In Seconds)	
Combination 2 Filters + Common Filter>size>Small	1.103	-
Combination 2 Filters + Common Filter>size>Small, Empty	1.066	-
Combination 2 Filters + Evidence explorer>Evidence 1	6.196	-
Combination 2 Filters + Evidence explorer>Evidence 1, Evidence 2	4.477	-

Combination Filters 3:

Evidence Dropdown + Evidence Explorer

Test Scenarios	10 Million Files	1.5 Million Files
	Average Time taken for 1 User (In Seconds)	
Evidence dropdown>Select Evidence 1	1.835	-
Evidence dropdown>Select Evidence 1, Evidence 2	2	-
Evidence dropdown>Select Evidence 1, Evidence 2, Evidence 3	2.088	-
Evidence dropdown>Select Evidence 1, Evidence 2, Evidence 3, Evidence 4	0.453	-
Evidence dropdown>Select Evidence 1, Evidence 2, Evidence 3, Evidence 4, Evidence 5	0.443	-
Evidence dropdown>Select Evidence 1, Evidence 2, Evidence 3, Evidence 4, Evidence 5, Evidence 6	0.452	-
Evidence dropdown>Select Evidence 1, Evidence 2, Evidence 3, Evidence 4, Evidence 5, Evidence 6, Evidence 7	0.374	-

Test Scenarios	10 Million Files	1.5 Million Files
	Average Time taken for 1 User (In Seconds)	
Evidence dropdown>Select Evidence 1, Evidence 2, Evidence 3, Evidence 4, Evidence 5, Evidence 6, Evidence 7, Evidence 8	0.359	-
Evidence dropdown + Evidence Explorer>Select Evidence 1	2.035	-
Evidence dropdown + Evidence Explorer>Select Evidence 1, Evidence 2	2.123	-
Evidence dropdown + Evidence Explorer>Select Evidence 1, Evidence 2, Evidence 3	2.236	-
Evidence dropdown + Evidence Explorer>Select Evidence 1, Evidence 2, Evidence 3, Evidence 4	2.278	-
Evidence dropdown + Evidence Explorer>Select Evidence 1, Evidence 2, Evidence 3, Evidence 4, Evidence 5	0.608	-

www.exterro.com

Combination Filters 3 Exclusion

Test Scenarios	10 Million Files	1.5 Million Files
	Average Time taken for 1 User (In Seconds)	
Evidence dropdown + Evidence Explorer>Exclude Evidence 1	0.583	-
Evidence dropdown + Evidence Explorer>Exclude Evidence 1, Evidence 2	0.545	-
Evidence dropdown + Evidence Explorer>Exclude Evidence 1, Evidence 2, Evidence 3	6.451	-

Combinational Filters 3 + Combination Filters 4:

Quick Filters + Common Filters + Artifacts

Test Scenarios	10 Million Files	1.5 Million Files
	Average Time taken for 1 User (In Seconds)	
Artifacts>Document	6.472	-
Artifacts>Document, Email	6.496	-
Artifacts>Document, Email, Mobile	6.407	-
Artifacts + Common Filter> Size	0.742	-
Artifacts + Common Filter + Quick filter>Remove Duplicates	12.224	-
Artifacts + Common Filter + Quick filter>Remove Duplicates, Remove Containers [Combination 3 Result] [Evidence Dropdown, Evidence Explorer, Artifacts, Quick filter, Common filter]	7.751	-

www.exterro.com

Combinational Filters 3 + Combination Filters 4 Exclusion

Test Scenarios	10 Million Files	1.5 Million Files
	Average Time taken for 1 User (In Seconds)	
Artifacts>Document	7.665	-
Evidence Explorer>Exclude Evidence 1	7.172	-
Evidence Explorer>Exclude Evidence 1, Evidence 2	5.892	-
Evidence Explorer>Exclude Evidence 1, Evidence 2, Evidence 3	6.141	-

List View - Column Template List

Test Scenarios	10 Million Files	1.5 Million Files
	Average Time taken for 1 User (In Seconds)	
Column Template List > Documents	-	-
Column Template List > Airdrop background activity & discoverability	2.168	2.191
Column Template List > Apple Maps	2.217	2.132
Column Template List > Applications	2.269	2.142
Column Template List > Bluetooth network	2.235	2.076
Column Template List > Calendar	2.271	2.038
Column Template List > Common	2.179	2.083
Column Template List > Device information	2.432	2.087
Column Template List > Email	0.255	2.269
Column Template List > Health Data	2.158	2.113
Column Template List > Installed App	2.368	2.247
Column Template List > InteractionC Information	2.164	2.064
Column Template List > Internet	2.276	2.232
Column Template List > Keychain Information	2.183	1.928
Column Template List > KnowledgeC Information	2.146	2.196

Test Scenarios	10 Million Files	1.5 Million Files
	Average Time taken for 1 User (In Seconds)	
Column Template List > Layout	2.331	2.142
Column Template List > Location	2.076	2.265
Column Template List > LocationD Information	2.363	2.13
Column Template List > MMS	2.312	2.082
Column Template List > Media	2.29	2.153
Column Template List > Memory Analysis	2.156	2.136
Column Template List > Mobile	2.342	1.965
Column Template List > Notes	2.158	2.184
Column Template List > Password	2.192	2.188
Column Template List > Report	2.21	2.056
Column Template List > RoutineD cached locations data	2.324	2.149
Column Template List > Search	2.262	1.943
Column Template List > Software Inventory	2.242	2.249
Column Template List > Summary Information	2.121	2.227
Column Template List > Timeline	0.282	0.423
Column Template List > Volatile	2.311	2.14
Column Template List > WebHistory	2.053	2.214
Column Template List > Wireless Network	2.372	2.151

www.exterro.com

Thumbnail View - Sort By

Test Scenarios	10 Million Files	1.5 Million Files
	Average Time taken for 1 User (In Seconds)	
Sort by > Name (ASC)	1.296	0.245
Sort by > Created Date (ASC)	2.316	0.401
Sort by > Last Modified Date (ASC)	2.359	0.399
Sort by > Path (ASC)	1.403	0.191
Sort by > Logical Size (ASC)	5.363	0.727
Sort by > Extension (ASC)	1.273	0.194
Sort by > Duration (ASC)	1.324	0.188
Sort by > Exif Image Make (ASC)	1.915	0.223
Sort by > Exif Image Model (ASC)	1.25	0.326
Sort by > Stacks (ASC)	17.127	0.164
Sort by > Location City (ASC)	1.301	0.019
Sort by > Location Country (ASC)	1.241	0.307
Sort by > Name (DESC)	1.239	0.218
Sort by > Created Date (DESC)	2.324	0.401
Sort by > Last Modified Date (DESC)	2.28	0.398
Sort by > Path (DESC)	2.963	0.325
Sort by > Logical Size (DESC)	1.281	0.252
Sort by > Extension (DESC)	1.369	0.267
Sort by > Duration (DESC)	1.257	0.184
Sort by > Exif Image Make (DESC)	1.334	0.218
Sort by > Exif Image Model (DESC)	1.336	0.223
Sort by > Stacks (DESC)	5.262	0.226
Sort by > Location City (DESC)	1.275	0.22
Sort by > Location Country (DESC)	1.315	0.219

www.exterro.com

Thumbnail View - Group By

Test Scenarios	10 Million Files	1.5 Million Files
	Average Time taken for 1 User (In Seconds)	
Group by > Name	1.068	0.163
Group by > Created Date	2.05	0.616
Group by > Last Modified Date	1.938	0.55
Group by > Duration	0.402	0.21
Group by > Extension	0.744	0.218
Group by > Logical Size	0.243	0.165
Group by > Exif Image Make	1.214	0.253
Group by > Exif Image Model	1.855	0.274
Group by > Stacks	4.79	0.306
Group by > Location City	1.801	0.243
Group by > Location Country	1.791	0.281

www.exterro.com

2.3.2 Multiuser Performance Metrics in FTK Central 8.2 SP2

The below time stamps (in seconds) are recorded as a comparison **between 1 user and 10 users with 10 million files** in FTK Central 8.2 SP2 application (PostgreSQL database) where the ramp-up period is 3 seconds.

Manage Pages:

Test Scenarios	1 User	10 Users
	Average Time to process 10 million files (In Seconds)	
Login		
Manage Case List	0.189	0.567
Review Page	0.99	28.925
Not Viewed	12.584	5.44
Artifacts API	5.067	9.238
Evidence Explorer API	0.15	0.46
Pagination Next (List View)	0.212	0.521
Pagination Previous (List View)	0.196	0.464
Thumbnail View	1.744	3.899
Next Page (Thumbnail View)	0.203	0.662
Previous Page (Thumbnail View)	0.195	0.68
Jump to any Page (Thumbnail View)	0.253	0.733

Searches:

Test Scenarios	1 User	10 Users
	Average Time to process 10 million files (In Seconds)	
Basic Search > Boolean	2.314	2.59
Basic Search > Wildcard	1.826	2.339
Basic Search > All 3 combination	2.135	2.445
Adv. Search > Boolean	4.772	4.412
Adv. Search > wildcard	2.67	4.478
Adv. Search > All 3 combination	2.781	4.348
Adv. Search > All 3 combination > Any include Related docs	3.248	4.42
Adv. Search > All 3 combination > Any More Options	2.76	3.656
Search query in stemming with the complex queries	3.2	4.478
Remove Text Search	0.296	3.257
Remove Adv Text Search (100 docs)	0.69	3.672

Quick Filters:

Test Scenarios	1 User	10 Users
	Average Time to process 10 million files (In Seconds)	
Quick filter>labeled fields>Apply	0.328	1.009
Quick filter>labeled fields>Remove	0.218	0.705
Quick Filter>checked files>Apply	0.148	0.645
Quick Filter>checked files>Remove	0.2	0.603
Quick Filter>toggle bookmark or reports filter>apply	0.155	0.381
Quick Filter>toggle bookmark or reports filter>Remove	0.207	0.396
Quick Filter>ignorable>apply	0.149	0.311
Quick Filter>ignorable>Remove	0.206	0.445
Quick Filter>internet favorites>apply	0.219	0.403
Quick Filter>internet favorites>Remove	0.205	0.42
Quick Filter>privileged>apply	0.213	0.443
Quick Filter>privileged>Remove	0.206	0.547
Quick Filter>remove duplicates>apply	0.212	0.421
Quick Filter>remove duplicates>Remove	0.198	0.382
Quick Filter>deleted files>apply	0.294	0.496
Quick Filter>deleted files>Remove	0.205	0.429
Quick Filter>carved files>apply	0.123	0.293
Quick Filter>carved files>Remove	0.203	0.336
Quick Filter>encrypted files>apply	0.312	0.336
Quick Filter>encrypted files>Remove	0.207	0.372
Quick Filter>from recycle bin>apply	0.206	0.33
Quick Filter>from recycle bin>Remove	0.208	0.311
Quick Filter>OCRed files>apply	0.126	0.202
Quick Filter>OCRed files>Remove	0.204	0.299

Test Scenarios	1 User	10 Users
	Average Time to process 10 million files (In Seconds)	
Quick Filter>bad extension>apply	0.215	0.329
Quick Filter>bad extension>Remove	0.301	0.33
Quick Filter>hidden files>apply	0.214	0.346
Quick Filter>hidden files>Remove	0.197	0.452
Quick Filter>email attachment>apply	0.228	0.538
Quick Filter>email attachment>Remove	0.201	0.487
Quick Filter>geo location>apply	0.221	0.487
Quick Filter>geo location>Remove	0.204	0.573
Quick Filter>eDiscovery refinement>apply	0.252	0.496
Quick Filter>eDiscovery refinement>Remove	0.348	0.461
Quick Filter>notes and bookmarks>apply		-
Quick Filter>notes and bookmarks>Remove		-
Quick Filter>containers>apply	0.243	0.48
Quick Filter>containers>Remove	0.226	0.559

Common Filters:

Test Scenarios	1 User	10 Users
	Average Time taken for 1 User (In Seconds)	
CommonFilter > Bookmarks > Load	5.389	14.178
CommonFilter > Bookmarks > Apply	0.18	0.593
CommonFilter > Bookmarks > Remove	0.313	0.499
CommonFilter > CerebrusSTG1 > Load	0.204	0.424
CommonFilter > Custodians > Load	0.038	0.072
CommonFilter > CustomField > Load	0.053	0.089
CommonFilter > DateAccessed > Load	0.052	0.078
CommonFilter > DateAccessed > 1 > Apply	0.255	0.39
CommonFilter > DateAccessed > 1 > Remove	0.197	0.398
CommonFilter > DateCreated > Load	0.063	0.092
CommonFilter > DateCreated > 1 > Apply	1.428	2.29
CommonFilter > DateCreated > 1 > Remove	0.197	0.356
CommonFilter > DateModified > 1 > Load	0.063	0.081
CommonFilter > DateModified > 1 > Apply	1.266	2.107
CommonFilter > DateModified > 1 > Remove	0.215	0.306
CommonFilter > DocumentContent > ClusterTopic > Load	0.084	0.174
CommonFilter > DocumentContent > ClusterTopic > Apply	0.126	0.203
CommonFilter > DocumentContent > EmailAddress > Load	0.036	0.056
CommonFilter > DocumentContent > CCN > Load	0.037	0.061
CommonFilter > DocumentContent > PHNO > Load	0.04	0.061
CommonFilter > DocumentContent > SSN > Load	0.039	0.052
CommonFilter > Viewed > Load	12.459	40.562
CommonFilter > Viewed > NV > Apply	0.164	0.3
CommonFilter > Viewed > NV > Remove	0.205	0.354
CommonFilter > Viewed > V > Apply	0.161	0.273

| Test Scenarios | 1 User | 10 Users |
	Average Time taken for 1 User (In Seconds)	
CommonFilter > Viewed > V > Remove	0.206	0.372
CommonFilter > Status > Load	18.058	35.92
CommonFilter > Status > BadExt > Apply	0.214	0.357
CommonFilter > Status > BadExt > Remove	0.205	0.326
CommonFilter > Status > DelFiles > Apply	0.311	0.496
CommonFilter > Status > DelFiles > Remove	0.203	0.353
CommonFilter > Status > EmailAttachment > Apply	0.208	0.36
CommonFilter > Status > EmailAttachment > Remove	0.209	0.304
CommonFilter > Status > EmailRelatedItem > Apply	0.329	0.329
CommonFilter > Status > EmailRelatedItem > Remove	0.209	0.321
CommonFilter > Status > EmailReply > Apply	0.208	0.311
CommonFilter > Status > EmailReply > Remove	0.199	0.339
CommonFilter > Status > EncryptedFiles > Apply	0.212	0.311
CommonFilter > Status > EncryptedFiles > Remove	0.205	0.304
CommonFilter > Status > Recyclebin > Apply	0.217	0.361
CommonFilter > Status > Recyclebin > Remove	0.2	0.306
CommonFilter > Size > Load	5.776	10.21
CommonFilter > Size > Gigantic > Apply	0.218	0.334
CommonFilter > Size > Gigantic > Remove	0.324	0.31
CommonFilter > Size > Huge > Apply	0.208	0.385
CommonFilter > Size > Huge > Remove	0.199	0.301
CommonFilter > Size > Large > Apply	0.214	0.305
CommonFilter > Size > Large > Remove	0.34	0.34
CommonFilter > Size > Medium > Apply	0.217	0.306
CommonFilter > Size > Medium > Remove	0.203	0.331
CommonFilter > Size > Small > Apply	0.209	0.325
CommonFilter > Size > Small > Remove	0.315	0.362

www.exterro.com

Test Scenarios	1 User	10 Users
	Average Time taken for 1 User (In Seconds)	
CommonFilter>Size>Tiny>Apply>	0.316	0.331
CommonFilter>Size>Tiny>Remove>	0.204	0.341
CommonFilter>Size>Empty>Apply>	0.201	0.444
CommonFilter>Size>Empty>Remove>	0.197	0.321
CommonFilter>Language>Load>	0.094	0.352
CommonFilter>ObjectTypes>Load>	1.986	6.657
CommonFilter>ObjectTypes>CaseOrganizer>Apply>	0.215	0.355
CommonFilter>ObjectTypes>CaseOrganizer>Remove>	0.41	0.587
CommonFilter>ObjectTypes>FilesEmial>Apply>	0.467	4.466
CommonFilter>ObjectTypes>FilesEmial>Remove>	0.39	4.808
CommonFilter>ProductionSets>Load>	13.566	23.922
CommonFilter>ProductionSets>Apply>	0.321	5.903
CommonFilter>ProductionSets>Remove>	0.204	6.342
CommonFilter>Labels>Load>	0.072	0.167
CommonFilter>Labels>1>Apply>	0.305	3.378
CommonFilter>Labels>1>Remove>	0.2	3.291
CommonFilter>Labels>2>Apply>		-
CommonFilter>Labels>2>Remove>		-
CommonFilter>Issues>Load>	0.089	0.161
CommonFilter>KFF>kffvendors>Load>	0.06	0.149
CommonFilter>KFF>kffgroups>Load>	0.066	0.213
CommonFilter>KFF>kffstatus>Load>	0.06	0.122
CommonFilter>KFF>kffsets>Load>	0.063	0.115
CommonFilter>EmailDate>Load>	24.136	56.68
CommonFilter>EmailDate>Received>Apply>	0.296	0.651
CommonFilter>EmailDate>Received>Remove>	0.342	0.331
CommonFilter>EmailDate>Sent>Apply>	0.299	0.539

Test Scenarios	1 User	10 Users
	Average Time taken for 1 User (In Seconds)	
CommonFilter>EmailDate>Sent>Remove>	0.205	0.332
CommonFilter>Extension>Load>	1.341	2.305
CommonFilter>Extension>1>Apply>	0.595	0.882
CommonFilter>Extension>2>Remove>	0.203	0.763

Column Filters:

Test Scenarios	1 User	10 Users
	Average Time to process 10 million files (In Seconds)	
ColumnFilters>ObjectName>Apply>	1.898	13.143
ColumnFilters>ObjectName>Remove>	0.242	0.544
ColumnFilters>ObjectID>Apply>	0.14	0.261
ColumnFilters>ObjectID>Remove>	0.236	0.391
ColumnFilters>CreateDate>Load>	19.02	22.456
ColumnFilters>CreateDate>Apply	0.17	0.319
ColumnFilters>CreateDate>Remove>	0.245	0.319
ColumnFilters>LastModifiedDate>Load>	24.222	32.843
ColumnFilters>LastModifiedDate>Apply>	0.154	0.244
ColumnFilters>LastModifiedDate>Remove>	0.246	0.341
ColumnFilters>FileType>Load>	9.199	12.674
ColumnFilters>FileType>1>Apply>	0.208	0.307
ColumnFilters>FileType>Remove>	0.227	0.303
ColumnFilters>FileExt>Load>	2.342	4.225
ColumnFilters>FileExt>Apply>	0.221	0.756
ColumnFilters>FileExt>Remove>	0.239	0.285
ColumnFilters>Path>Apply>	0.735	0.392
ColumnFilters>Path>Remove>	0.236	0.276
ColumnFilters>MD5>Apply>	0.148	0.151

Test Scenarios	1 User	10 Users
	Average Time to process 10 million files (In Seconds)	
ColumnFilters>MD5>Remove>	0.222	0.303

Filter Artifacts:

Test Scenarios	1 User	10 Users
	Average Time taken for 1 User (In Seconds)	
Artifacts>Highlight>Enabled	2.102	9.786
Artifacts>Highlight>Excluded	0.264	9.841
Artifacts>Highlight>Removed	0.229	8.741
Artifacts>Multimedia>Enabled	0.289	9.344
Artifacts>Multimedia>Excluded	0.343	9.057
Artifacts>Multimedia>Removed	0.26	7.479
Artifacts>Mobile>Enabled	0.193	7.538
Artifacts>Mobile>Excluded	0.239	7.391
Artifacts>Mobile>Removed	1.95	7.559
Artifacts>Chatapps>Enabled	0.174	7.858
Artifacts>Chatapps>Excluded	0.345	9.128
Artifacts>Chatapps>Removed	0.24	8.317
Artifacts>Docs>Enabled	2.207	8.407
Artifacts>Docs>Excluded	0.566	8.563
Artifacts>Docs>Removed	0.337	6.215
Artifacts>Emails>Enabled	2.435	7.136
Artifacts>Emails>Excluded	0.309	8.054
Artifacts>Emails>Removed	0.234	7.642
Artifacts>OSFile>Enabled	0.306	8.192
Artifacts>OSFile>Excluded	0.342	8.58
Artifacts>OSFile>Removed	0.258	8.756

Test Scenarios	1 User	10 Users
	Average Time taken for 1 User (In Seconds)	
Artifacts>DB>Enabled	0.344	8.47
Artifacts>DB>Excluded	0.334	8.677
Artifacts>DB>Removed	0.237	7.996
Artifacts>GeoLoc>City>Load	0.144	0.482
Artifacts>GeoLoc>City>Enable	0.7	7.917
Artifacts>GeoLoc>City>Excluded	0.24	7.915
Artifacts>GeoLoc>City>Removed	0.228	7.459
Artifacts>Others>Enabled	0.261	8.257
Artifacts>Others>Excluded	0.301	8.377
Artifacts>Others>Removed	0.25	7.557
Artifacts>internetBtowser>Enabled	0.426	8.448
Artifacts>internetBtowser>Excluded	0.295	7.865
Artifacts>internetBtowser>Removed	0.228	6.449
Artifacts>SystemSummary>Enabled	0.727	8.892
Artifacts>SystemSummary>Excluded	0.835	7.856
Artifacts>SystemSummary>Removed	0.355	3.779

Evidence:

Test Scenarios	1 User	10 Users
	Average Time to process 10 million files (In Seconds)	
Evidence 1 > Apply	5.312	2.853
Evidence 1 > Exclude	0.198	1.942
Evidence 1 > Remove	0.266	0.734

Combination Filters 1:

Common Filters + Artifacts + Quick Filters

Test Scenarios	1 User	10 Users
	Average Time taken for 1 User (In Seconds)	
Common filter : Object types > Files and Emails	0.436	4.774
Common filter + Artifacts >Chatapplication	0.211	4.714
Common filter + Artifacts >Chatapplication , Documents	3.665	4.016
Common filter + Artifacts >Chatapplication , Documents , Internet & Browsers	0.772	5.487
Common filter + Artifacts >Chatapplication , Documents , Internet & Browsers, Emails	0.558	5.002
Common filter + Artifacts + Quick Filter applied on>Remove Containers	0.787	2.396
Common filter + Artifacts + Quick Filter applied on>Remove Containers, Remove Notes and Bookmark		-
Common filter + Artifacts + Quick Filter applied on>Remove Containers, Remove Notes and Bookmark, Remove Duplicates [Combination 1 Result] [Quick Filters, Common Filters, Artifacts]	0.718	2.021

Combination Filters 1 Exclusion:

Test Scenarios	1 User	10 Users
	Average Time taken for 1 User (In Seconds)	
Combination 1 + Document from Artifact	5.078	14.626

Combination Filters 2:

Common Filters + Artifacts + Evidence

Test Scenarios	1 User	10 Users
	Average Time taken for 1 User (In Seconds)	
Common Filter>Size>Tiny	0.292	7.934
Common Filter>Size>Tiny, Gigantic	0.245	0.841
Common Filter>Size>Tiny, Gigantic, Small	0.24	0.747
Common Filter>Size>Tiny, Gigantic, Small, Empty	0.341	1.065
Common Filter + Artifacts filter> Document	0.443	5.833
Common Filter + Artifacts filter> Document, Email	0.433	5.245
Common Filter + Artifacts filter + Evidence Explorer>Evidence 1	0.585	2.355
Common Filter + Artifacts filter + Evidence Explorer>Evidence 1, Evidence 2	0.594	2.348
Common Filter + Artifacts filter + Evidence Explorer>Evidence 1, Evidence 2,Evidence 3	0.62	1.846
Common Filter + Artifacts filter + Evidence Explorer>Evidence 1, Evidence 2,Evidence 3, Evidence 4	0.605	2.161

Combination Filters 2 Exclusion:

Test Scenarios	1 User	10 Users
	Average Time taken for 1 User (In Seconds)	
Combination 2 Filters + Common Filter>size>Small	1.103	3.323
Combination 2 Filters + Common Filter>size>Small, Empty	1.066	3.289
Combination 2 Filters + Evidence explorer>Evidence 1	6.196	14.512
Combination 2 Filters + Evidence explorer>Evidence 1, Evidence 2	4.477	8.907

Combination Filters 3:

Evidence Dropdown + Evidence Explorer

Test Scenarios	1 User	10 Users
	Average Time taken for 1 User (In Seconds)	
Evidence dropdown>Select Evidence 1	1.822	4.129
Evidence dropdown>Select Evidence 1, Evidence 2	1.921	4.768
Evidence dropdown>Select Evidence 1, Evidence 2, Evidence 3	2.03	4.505
Evidence dropdown>Select Evidence 1, Evidence 2, Evidence 3, Evidence 4	0.441	4.129
Evidence dropdown>Select Evidence 1, Evidence 2, Evidence 3, Evidence 4, Evidence 5	0.447	1.241
Evidence dropdown>Select Evidence 1, Evidence 2, Evidence 3, Evidence 4, Evidence 5, Evidence 6	0.463	1.187
Evidence dropdown>Select Evidence 1, Evidence 2, Evidence 3, Evidence 4, Evidence 5, Evidence 6, Evidence 7	0.353	9.575
Evidence dropdown>Select Evidence 1, Evidence 2, Evidence 3, Evidence 4, Evidence 5, Evidence 6, Evidence 7, Evidence 8	0.364	1.45
Evidence dropdown + Evidence Explorer>Select Evidence 1	1.946	4.614

www.exterro.com

Test Scenarios	1 User	10 Users
	Average Time taken for 1 User (In Seconds)	
Evidence dropdown + Evidence Explorer>Select Evidence 1, Evidence 2	2.182	4.895
Evidence dropdown + Evidence Explorer>Select Evidence 1, Evidence 2, Evidence 3	2.165	5.029
Evidence dropdown + Evidence Explorer>Select Evidence 1, Evidence 2, Evidence 3, Evidence 4	2.182	4.826
Evidence dropdown + Evidence Explorer>Select Evidence 1, Evidence 2, Evidence 3, Evidence 4, Evidence 5	0.564	1.883

Combination Filters 3 Exclusion

Test Scenarios	1 User	10 Users
	Average Time taken for 1 User (In Seconds)	
Evidence dropdown + Evidence Explorer>Exclude Evidence 1	0.583	1.64
Evidence dropdown + Evidence Explorer>Exclude Evidence 1, Evidence 2	0.545	1.728
Evidence dropdown + Evidence Explorer>Exclude Evidence 1, Evidence 2, Evidence 3	6.451	13.644

www.exterro.com

Combinational Filters 3 + Combination Filters 4:

Quick Filters + Common Filters + Artifacts

Test Scenarios	1 User	10 Users
	Average Time taken for 1 User (In Seconds)	
Artifacts>Document	6.472	15.204
Artifacts>Document, Email	6.496	15.372
Artifacts>Document, Email, Mobile	6.407	15.426
Artifacts + Common Filter> Size	0.742	9.986
Artifacts + Common Filter + Quick filter>Remove Duplicates	12.224	18.282
Artifacts + Common Filter + Quick filter>Remove Duplicates, Remove Containers [Combination 3 Result] [Evidence Dropdown, Evidence Explorer, Artifacts, Quickfilter, Commonfilter]	7.751	18.312

Combinational Filters 3 + Combination Filters 4 Exclusion:

Test Scenarios	1 User	10 Users
	Average Time taken for 1 User (In Seconds)	
Artifacts>Document	7.665	16.531
Evidence Explorer>Exclude Evidence 1	7.172	12.543
Evidence Explorer>Exclude Evidence 1, Evidence 2	5.892	11.49
Evidence Explorer>Exclude Evidence 1, Evidence 2, Evidence 3	6.141	16.209

www.exterro.com

List View - Column Template List

Test Scenarios	1 User	10 Users
	Average Time taken for 1 User (In Seconds)	
Column Template List > Documents	-	-
Column Template List > Airdrop background activity & discoverability	2.168	5.443
Column Template List > Apple Maps	2.217	5.99
Column Template List > Applications	2.269	7.04
Column Template List > Bluetooth network	2.235	6.658
Column Template List > Calendar	2.271	7.383
Column Template List > Common	2.179	7.311
Column Template List > Device information	2.432	7.252
Column Template List > Email	0.255	7.465
Column Template List > Health Data	2.158	6.974
Column Template List > Installed App	2.368	6.903
Column Template List > InteractionC Information	2.164	6.238
Column Template List > Internet	2.276	6.629
Column Template List > Keychain Information	2.183	6.629
Column Template List > KnowledgeC Information	2.146	7.026
Column Template List > Layout	2.331	7.779
Column Template List > Location	2.076	7.388
Column Template List > LocationD Information	2.363	6.98
Column Template List > MMS	2.312	7.219
Column Template List > Media	2.29	7.251
Column Template List > Memory Analysis	2.156	7.149
Column Template List > Mobile	2.342	6.79
Column Template List > Notes	2.158	6.796
Column Template List > Password	2.192	6.693

Test Scenarios	1 User	10 Users
	Average Time taken for 1 User (In Seconds)	
Column Template List > Report	2.21	6.83
Column Template List > RoutineD cached locations data	2.324	6.838
Column Template List > Search	2.262	6.493
Column Template List > Software Inventory	2.242	6.957
Column Template List > Summary Information	2.121	7.116
Column Template List > Timeline	0.191	7.204
Column Template List > Volatile	2.311	6.821
Column Template List > WebHistory	2.053	5.746
Column Template List > Wireless Network	2.372	4.902

Thumbnail View - Sort By

Test Scenarios	1 User	10 Users
	Average Time taken for 1 User (In Seconds)	
Sort by > Name (ASC)	1.296	3.551
Sort by > Created Date (ASC)	2.316	8.642
Sort by > Last Modified Date (ASC)	2.359	9.386
Sort by > Path (ASC)	1.403	4.057
Sort by > Logical Size (ASC)	5.363	11.897
Sort by > Extension (ASC)	1.273	3.281
Sort by > Duration (ASC)	1.324	3.833
Sort by > Exif Image Make (ASC)	1.915	5.222
Sort by > Exif Image Model (ASC)	1.25	4.757
Sort by > Stacks (ASC)	17.127	8.307
Sort by > Location City (ASC)	1.301	4.629
Sort by > Location Country (ASC)	1.241	4.626
Sort by > Name (DESC)	1.239	3.82

Test Scenarios	1 User	10 Users
	Average Time taken for 1 User (In Seconds)	
Sort by > Created Date (DESC)	2.324	10.838
Sort by > Last Modified Date (DESC)	2.28	8.873
Sort by > Path (DESC)	2.963	7.146
Sort by > Logical Size (DESC)	1.281	3.856
Sort by > Extension (DESC)	1.369	2.834
Sort by > Duration (DESC)	1.257	2.704
Sort by > Exif Image Make (DESC)	1.334	4.282
Sort by > Exif Image Model (DESC)	1.336	3.686
Sort by > Stacks (DESC)	5.262	9.07
Sort by > Location City (DESC)	1.275	3.726
Sort by > Location Country (DESC)	1.315	3.733

Thumbnail View - Group By:

Test Scenarios	1 User	10 Users
	Average Time taken for 1 User (In Seconds)	
Group by > Name	1.068	4.935
Group by > Created Date	2.05	6.867
Group by > Last Modified Date	1.938	7.484
Group by > Duration	0.402	0.742
Group by > Extension	0.744	2.396
Group by > Logical Size	0.243	0.468
Group by > Exif Image Make	1.214	3.349
Group by > Exif Image Model	1.855	4.531
Group by > Stacks	4.79	11.038
Group by > Location City	1.801	2.755
Group by > Location Country	1.791	2.695

www.exterro.com

Standalone Performance Comparison between FTK Central 8.2 SP1 and FTK Central 8.2 SP2

The below mentioned comparison table displays the Improvement (in percentage) between FTK Central 8.2 SP1 and FTK Central 8.2 SP2 for a single user and 10 users in PostgreSQL database where the ramp-up period is 3 seconds:

For 1 User:

Areas	FTKC 8.2 SP1 (Average time in seconds)	FTKC 8.2 SP2 (Average time in seconds)
	1 User	
Manage Page loading	2.110	3.454
Navigations	0.661	0.501
Quick Filters	0.212	0.217
Common Fitlers	0.749	1.232
Column Filters	1.394	3.018
Artifacts Filters	2.205	0.528
Evidence Explorer	0.309	1.925
Complex Searches	1.013	2.427
Combinational Filters	1.526	2.518
Column Template List	2.173	2.113
Thumbnail View - Sort by	2.483	2.558
Thumbnail View - Group by	5.494	1.627
AVERAGE	**1.694**	**1.843**

For 10 Users

Areas	FTKC 8.2 SP1 (Average time in seconds)	FTKC 8.2 SP2 (Average time in seconds)
	1 User	
Manage Page loading	4.927	8.088
Navigations	2.437	1.244
Quick Filters	1.378	0.446
Common Fitlers	10.325	3.007
Column Filters	18.830	4.527
Artifacts Filters	12.242	7.837
Evidence Explorer	0.751	1.843
Complex Searches	4.192	3.645
Combinational Filters	4.253	6.709
Column Template List	12.656	6.871
Thumbnail View - Sort by	7.549	5.698
Thumbnail View - Group by	8.488	4.296
AVERAGE	**7.336**	**4.518**

Contact Exterro

If you have any questions, please refer to this document, or any other related materials provided to you by Exterro. For usage questions, please check with your organization's internal application administrator. Alternatively, you may contact your Exterro Training Manager or other Exterro account contact directly.

For technical difficulties, support is available through support@exterro.com.

Contact:

Exterro, Inc.

2175 NW Raleigh St., Suite 110

Portland, OR 97210.

Telephone: 503-501-5100

Toll Free: 1-877-EXTERRO (1-877-398-3776)

Fax: 1-866-408-7310

General E-mail:info@exterro.com

Website: www.exterro.com