



# TigerGraph GCP Anti-Fraud Demo Training #1

INTERNAL SLIDE PRESENTATION

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# Overview Of Classes



## **CLASS #1 : AML Demo Overview**

- Talk Track - Anti Fraud
- Demo Review - Tips and Key Aspects to Highlight

## **CLASS #2 : AML - Explorer Deep Dive**

- Demo Detailed Explorer - Detailed Features (Business)
- Demo TGraph Studio - Show GSQL, Algos - (Tech - View Only)

## **CLASS #3 : Tech Orientation - TGraph Platform**

- Overview of Tech Elements - TGraph DB, Data Model, and UI layers
- Illustrate '2 Sides' for Tech setup and Business UI

## **CLASS #4 : AML Starter Kit & Graph Workbench**

- Overview of 'How To' - Extend TGraph DModel & Connect Explorer UI
- Extend data model, refactor for UI , load customer data & how to re-start



# TIGERGRAPH FINANCIAL CRIMES PPT

1. Key PPT Reference
2. High Level TGraph & Use Cases
3. Business & Technical Show & Tell

[https://docs.google.com/presentation/d/1GyaTX-VGAiTo9U\\_QPiLtlV\\_QBAtl05odmGiullB7us/edit#slide=id.g9cb15ec1e2\\_1\\_581](https://docs.google.com/presentation/d/1GyaTX-VGAiTo9U_QPiLtlV_QBAtl05odmGiullB7us/edit#slide=id.g9cb15ec1e2_1_581)

# DEMO LOGIN DATA

URL

<https://workbench.i.tgcloud-dev.com:9000/workbench#/>

Login : **TGUser**

Password : **AML123**

# TigerGraph Financial Crimes Solution

## Enterprise Capabilities

Fraud Analyst

Data Scientist

Investigation Managers

Research & Discovery

Application Integration

Real-Time Decisioning

### Connected Data Graph Database

- Database like Features & Functions
- Supports Inserts/Upserts/Deletes
- Batch & Streaming data loads
- Multi-Graph
- Scalable
- High Availability

### Transaction Monitoring Advanced Analytics

- Traditional SQL Analysis
- Graph Analytics
- Graph Algorithms
- Entity Resolution
- Connection Mining
- Geospatial Analysis
- Time Series Analysis

### Alert/Case Enhancements Graph Algorithms

- Centrality
- Community Detection
- Louvain
- Shortest Path
- Similarity
- PageRank
- Pattern Detection
- Feature Generation
- Explainable AI

### Fraud Workbench UI & Reporting

- AML Dashboard
- Alerts & Monitoring
- Alert Creation
- Alert Que-Detail
- Case Que-Detail
- Case Management Workflow
- Relationship Discovery
- SAR Generation
- Ad-Hoc Analysis

# TigerGraph Fraud Solution

## Modules

### Explorer

- Simple & Advanced Search
- Case, Alert & Ring View
- Link & Layout visualization
- Map & Grid View
- Graph Connection Information
- Hop & Connection Limits
- Save & Alert/Case attach
- Load / Save

### Analytics

- Analytics 'Recipe'
- Segmentation
- Pattern Mapping
- Similarity & Cohort View
- Risk Grid
- Sankey View
- Save & Alert/Case attach
- Load / Save
- View Multiple TGraph outcomes

### Alerts

- Alert Que & Detail
  - Role based Que
  - Connection View
  - Detailed view of Alerts
  - Linked parties, Graph
  - Workflow Enabled
- Alert Builder - Engine
  - Boolean
  - TGraph - Algo
  - Grouping - Priority

### Case Management

- Case Que & Detail
  - Case file
  - Subjects
  - Alert linking
  - Non-obvious connection
  - Workflow & filters
- Customer Logic
- Build and Save
- Criteria & Actions
- Grouping

### Dashboard

- Dashboard Builder
  - Role & Task Based
- Alert & Case Que
- KPI elements
  - Pie, Risk, Grids

### Reporting

- Grid, Summary Reports
  - Filters and Report
  - Ad Hoc
  - PDF, XLS, XML export
  - Link GSQL

### Workflow

- Setup CRUD
  - Cases
  - Alerts
  - Reports (SARS)
  - Approvals, Status

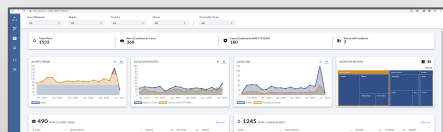
### ER/Data Enrichment

- Setup Link TGraph Algos
  - Alert Links
  - Dashboard Links
  - Workflow and Errors

# Visualization - Functionality by User

TIGERGRAPH WORKBENCH

TG STUDIO



EXECUTIVES

## Dashboards & Reports

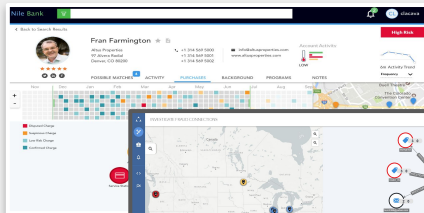
- Macro Trends
- Drill In Elements



LINE OF BUSINESS

## Analytics & Patterns - Case & Alert Que

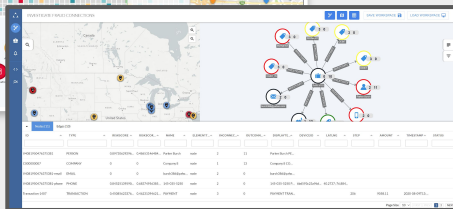
- Credit Card
- Banking Fraud
- AML
- Audit & Compliance
- Cyber
- Sanctions & Prosecution



ALERT MANAGEMENT

## Alert Management - Alert Builder

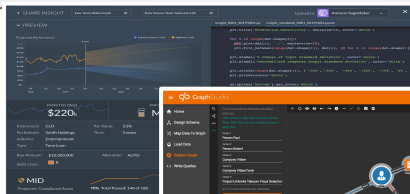
- Visual & Non Visual
- Alerts & Updates



TEAM INVESTIGATION

## Case & Alert Que - Detail

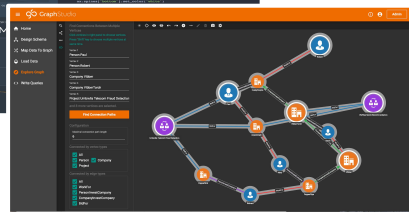
- Investigations & Teams
- Findings & Connectivity
- Exploration



ANALYTICS

## Analytics & Exploration Workbench

- ML & Algorithms
- Complex analytics and 'scenarios'



IT | PLATFORM

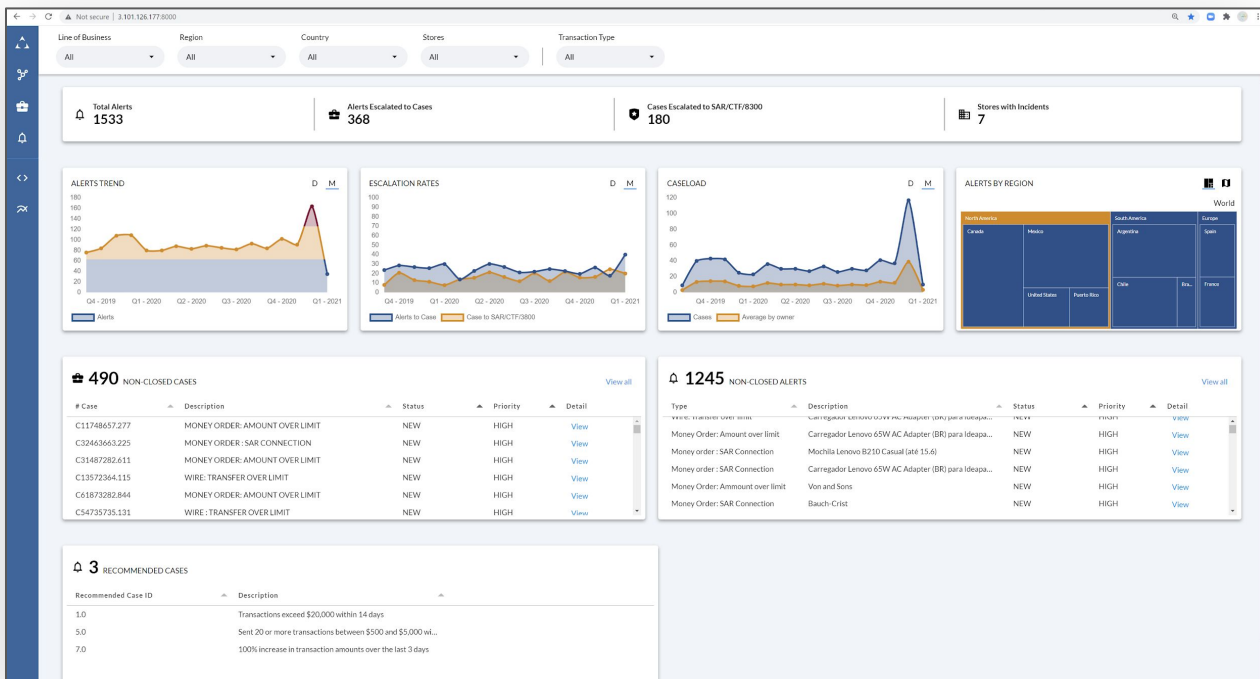
## TG Studio - Dashboard Builder - Workflow Mgr

- Data Models
- Graph Ops & Attributes

# DASHBOARDS - VISUAL REPORTS



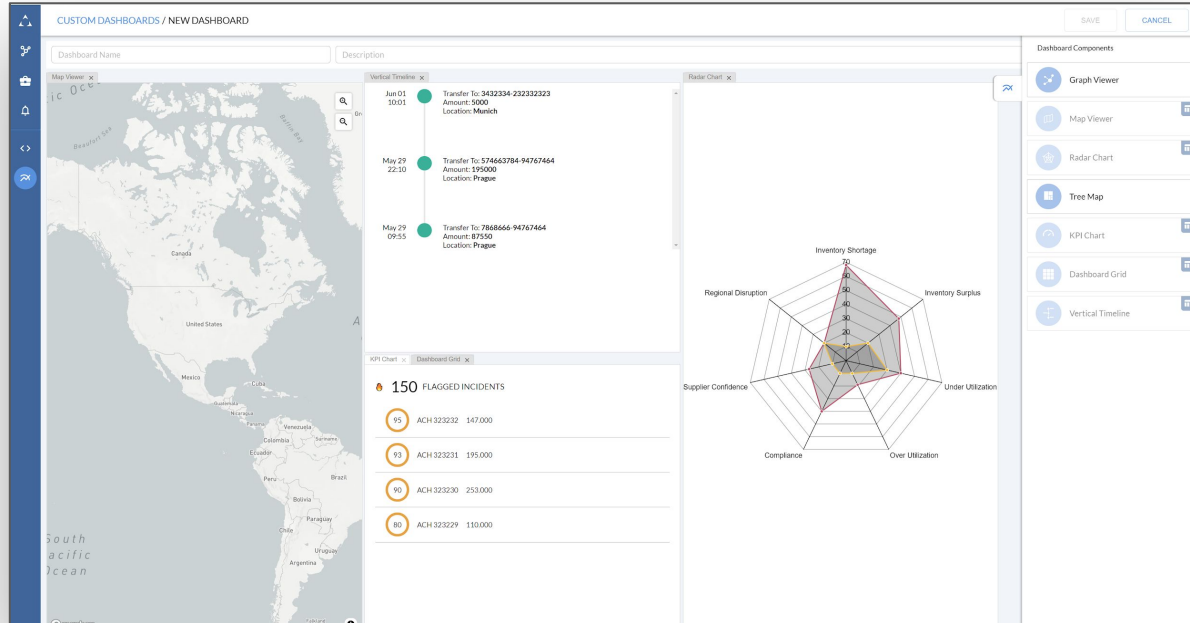
# Typical User : Everyone



## Dashboard

1. Role & Group Secure
2. Filters for stores, trx, regions, etc
3. Trends and Caseloads
4. Alerts by Regions
5. Quick View Cases
6. Quick View Alerts
7. Auto-grouped Cases
8. Role base - Left Navigation

# Typical User : Business Superuser - IT



## Dashboard Builder

1. Role & Group Secure
2. Drag & Drop
3. All current Widgets - registered
4. Super User Controlled
5. Can also utilize Walmart BI widgets - Tableau, Power BI or custom

# EXPLORER - WORKBENCH

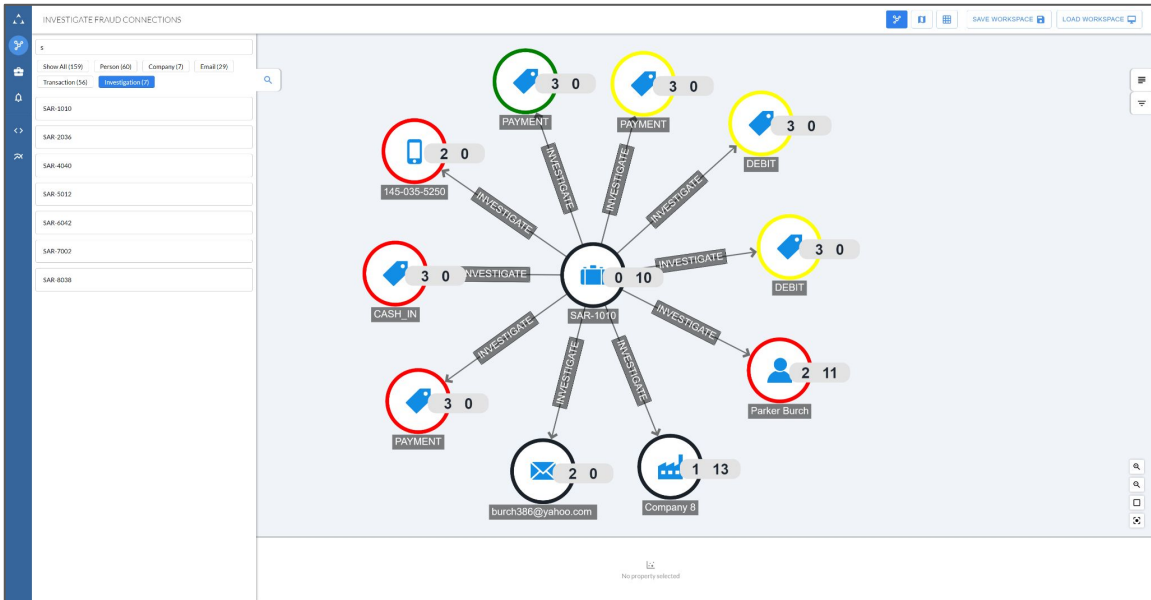
# Typical User : Level 3 Investigator (Lead Investigator)

## Advanced Exploration

1. Node and connection investigation
2. Search - Drag & Drop
3. Time - Control over time band
4. Filters - Nodes, Edges,
5. Layout - Visualization Options
6. Node Detail - Flyout out views

## Team Sharing

1. Save Workspace - JSON
2. Load - Shared JSON
3. Attach to Case



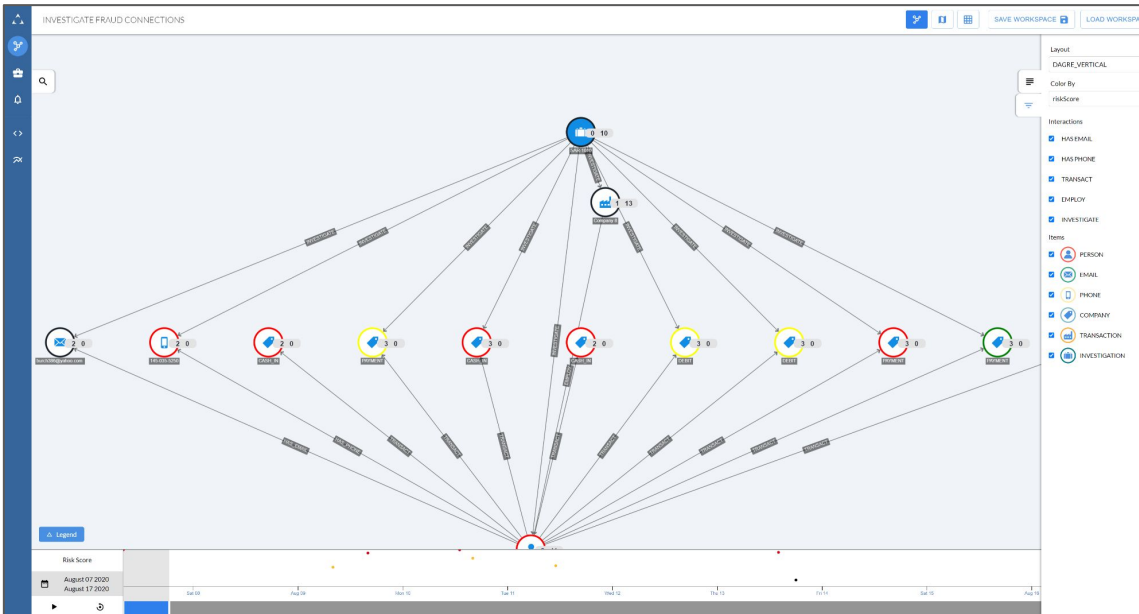
# Typical User : Level 3 Investigator (Lead Investigator)

## Advanced Exploration

1. Node Details
2. Connection Algorithms
3. Property Details
4. Comments - CRUD
  - a. Nodes & Vertices
  - b. History
  - c. Free form text
  - d. Timestamp

## Team Sharing - Role based

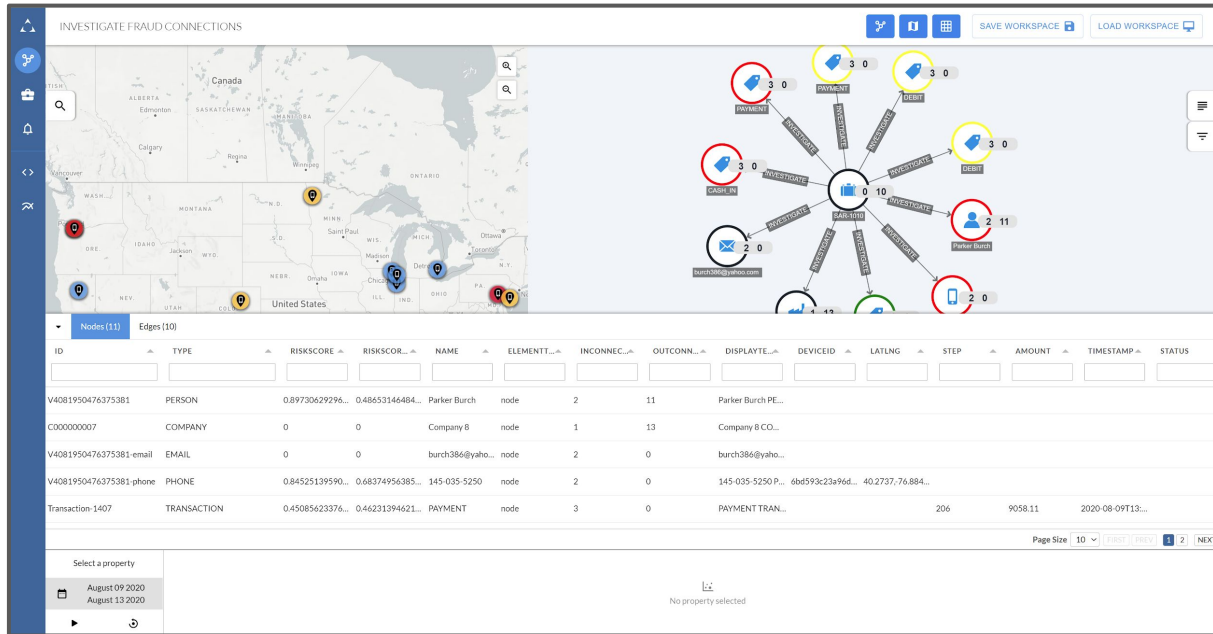
1. Atomic - data security
2. Hide - nodes, vertices
3. Remove - Canvas



# Typical User : Level 3 Investigator (Lead Investigator)

## Investigation - Case

1. Geography View
  - a. Alert location
  - b. Transaction location
  - c. All lat/long data view
2. Grid View
  - a. Sub-type search
  - b. Detailed attribute filters
  - c. Sorting
  - d. Vertex and Edges
3. Color Treatment
4. Layout - Visualization Options



# ALERT BUILDER - ALERT QUE - ALERT DETAIL

# Typical User : Business Super User

The screenshot shows a 'DASHBOARD / ALERT TRIGGERS' interface. At the top is a table with columns: CREATED, STATUS, PRIORITY, NAME, DESCRIPTION, CRITERIA, ACTIONS, and CREATED BY. The table contains five rows of alert data. Below the table are pagination controls: 'Page Size: 10', 'FIRST', 'PREV', '3', 'NEXT', 'LAST'. Two modal windows are overlaid on the dashboard. The 'Alert Details' modal (top right) shows fields for Name, Description, Start date, End date, Disposition date, and Priority. It also has tabs for 'CRITERIA' and 'ACTIONS'. The 'Criteria Builder' modal (bottom center) shows a list of criteria: 'Regional', 'Transaction Amount', 'Edit Criteria', 'Tiger Graph Algorithm', 'Location\_surgery', and 'Algorithm Type'. It includes a 'Group By' section with checkboxes for 'Regional', 'Transaction Amount', and 'Tiger Graph Algorithm', and a 'THEN' section with checkboxes for 'Transaction Amount' and 'Tiger Graph Algorithm'. At the bottom are 'SAVE' and 'SUBMIT FOR APPROVAL' buttons.

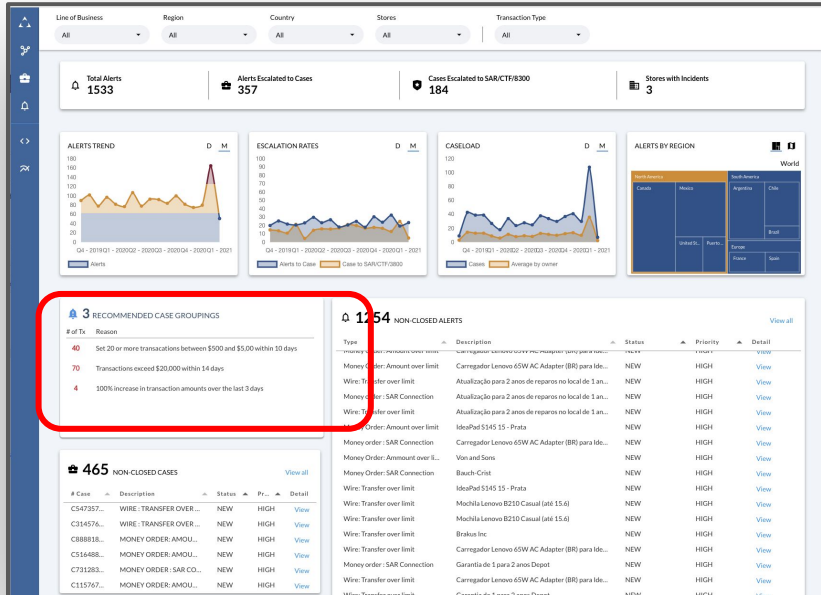
|   | CREATED          | STATUS           | PRIORITY | NAME                       | DESCRIPTION             | CRITERIA | ACTIONS | CREATED BY |
|---|------------------|------------------|----------|----------------------------|-------------------------|----------|---------|------------|
| 1 | 01/11/2021 17:40 | Draft            | HIGH     | New Intech Alert           |                         | 4        | 1       | Jon Doe    |
| 2 | 01/11/2021 08:59 | Draft            | HIGH     | Location - Similarity w... | Show Regional & Cust... | 3        | 1       | Jon Doe    |
| 3 | 12/30/2020 08:58 | Draft            | HIGH     | Geography Alert            | Known country Alert     | 3        | 1       | Jon Doe    |
| 4 | 12/29/2020 13:12 | Pending approval | MEDIUM   | Connection Alert to F...   | Items connected to SAR  | 5        | 0       | Jon Doe    |
| 5 | 12/29/2020 13:09 | Draft            | HIGH     | Transaction Alert Value    | Alert - Value of \$10K  | 2        | 0       | Jon Doe    |

## Alert Building - UI

1. Build and Save Alerts
2. Criteria Builder (Any loaded in TG)
  - a. Geography - off limits
  - b. Transaction rules
  - c. Limits and ranges
  - d. Relationships
  - e. Devices
  - f. Custom
3. TigerGraph Algorithm Connections
  - a. Louvain
  - b. Shortest path
  - c. .. (25 standard Algos)
4. Alert Groupings - Boolean & TGraph
  - a. Autogroup Alerts & Trxs
  - b. Boolean Logic
  - c. Sorting



# Typical User : Business Super User



## Alert Grouping - Alert Management

1. Auto-grouping of Alerts
2. Ability to group and Suggest Case
3. UI Preview of Alert Groupings

| #      | Store     | Sender   | Receiver | Amount    | Ref. | Off. | TXN L  | Store | Channel |
|--------|-----------|----------|----------|-----------|------|------|--------|-------|---------|
| 1205   | Sara      | 991Na... | 991Ha... | 138468... | 1    | 1    | ONLINE |       |         |
| 63008  | Stewart   | 991Na... | 991Ha... | 138468... | 2    | 2    | ONLINE |       |         |
| 150    | Adrian    | 991Na... | 991Ha... | 138468... | 1    | 1    | ONLINE |       |         |
| 2600   | Edu       | 991Na... | 991Ha... | 138468... | 1    | 1    | ONLINE |       |         |
| 222    | Andre     | 991Na... | 991Ha... | 138468... | 1    | 1    | ONLINE |       |         |
| 912    | Victorine | 991Na... | 991Ha... | 138468... | 1    | 1    | ONLINE |       |         |
| 64000  | Juan      | 991Na... | 991Ha... | 138468... | 1    | 2    | ONLINE |       |         |
| 961485 | Alonso    | 991Na... | 991Ha... | 138468... | 1    | 2    | ONLINE |       |         |
| 80800  | Art       | 991Na... | 991Ha... | 138468... | 1    | 4    | ONLINE |       |         |
| 361403 | Jerry     | 991Na... | 991Ha... | 138468... | 1    | 2    | ONLINE |       |         |
| 75020  | Katu      | 991Na... | 991Ha... | 138468... | 1    | 1    | ONLINE |       |         |
| 760    | Jim       | 991Na... | 991Ha... | 138468... | 1    | 2    | ONLINE |       |         |
| 47938  | Diag      | 991Na... | 991Ha... | 138468... | 1    | 1    | ONLINE |       |         |
| 28050  | Daria     | 991Na... | 991Ha... | 138468... | 1    | 1    | ONLINE |       |         |
| 03600  | Santiago  | 991Na... | 991Ha... | 138468... | 1    | 3    | ONLINE |       |         |
| 600    | Price     | 991Na... | 991Ha... | 138468... | 2    | 2    | ONLINE |       |         |
| 1000   | Bradford  | 991Na... | 991Ha... | 138468... | 1    | 1    | ONLINE |       |         |
| 03480  | Devon     | 991Na... | 991Ha... | 138468... | 1    | 3    | ONLINE |       |         |
| 82480  | Nathan    | 991Na... | 991Ha... | 138468... | 1    | 1    | ONLINE |       |         |
| 04700  | Freddo    | 991Na... | 991Ha... | 138468... | 1    | 2    | ONLINE |       |         |
| 500    | Wilfred   | 991Na... | 991Ha... | 138468... | 1    | 4    | ONLINE |       |         |
| 261480 | Lila      | 991Na... | 991Ha... | 138468... | 1    | 1    | ONLINE |       |         |
| 63008  | Debra     | 991Na... | 991Ha... | 138468... | 1    | 2    | ONLINE |       |         |
| 99100  | Chandre   | 991Na... | 991Ha... | 138468... | 1    | 1    | ONLINE |       |         |
| 1000   | Frances   | 991Na... | 991Ha... | 138468... | 1    | 1    | ONLINE |       |         |
| 48180  | Lavie     | 991Na... | 991Ha... | 138468... | 1    | 1    | ONLINE |       |         |
| 200    | Myles     | 991Na... | 991Ha... | 138468... | 1    | 3    | ONLINE |       |         |

**Alert Details**

Name: New Intech Alert

Description: Description

Start date: 01/12/2021

End date: 01/28/2021

Disposition date: mm/dd/yyyy

Priority: High

**CRITERIA ACTIONS**

Action 1: Group Triggered events

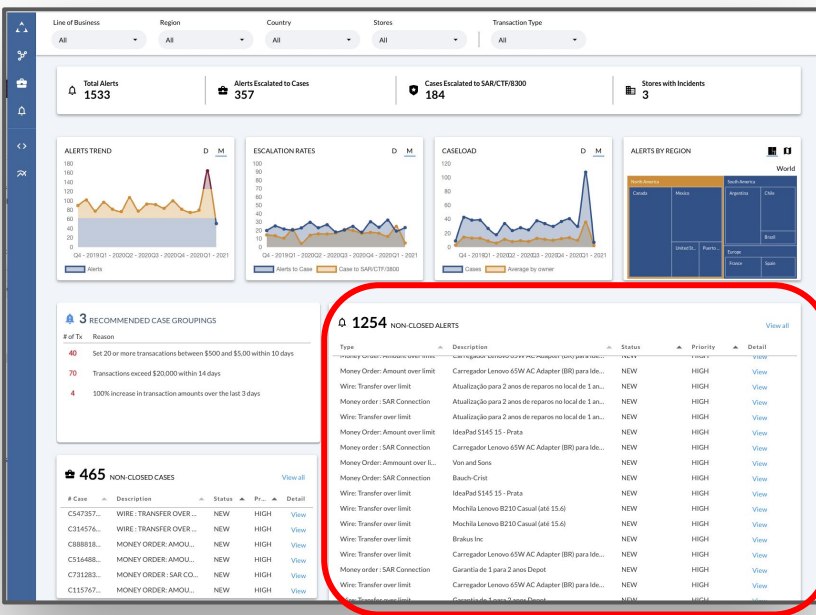
Group By: ☒ Regional ☐ Transaction Amount ☐ TGraph Algorithm

THEN: ☒ Transaction Amount ☐ TGraph Algorithm

ADDITIONAL: ☐ ADDITIONAL

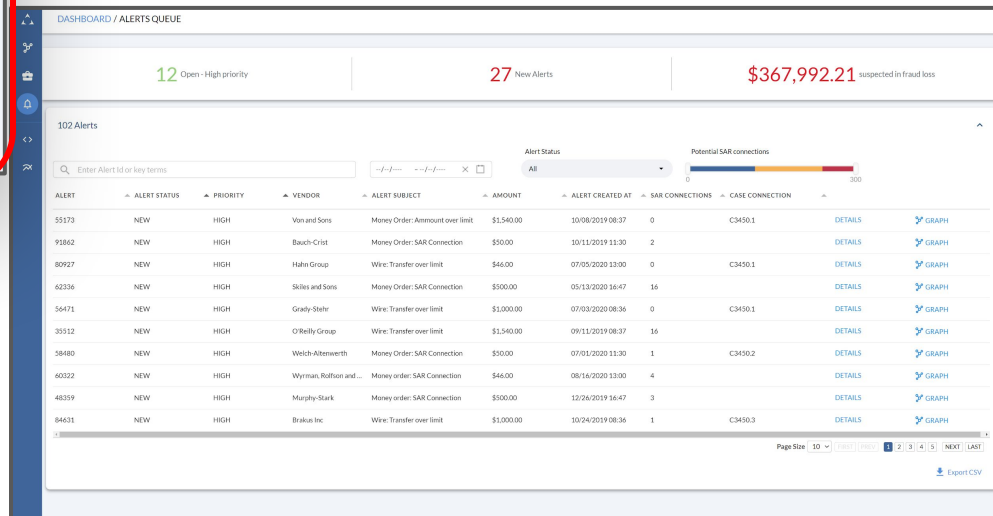
SAVE SUBMIT FOR APPROVAL

# Typical User : L1 Investigator



## Alert DB - Alert Que

1. Quick Filter for New & Priority
  - a. Quick Sorting
  - b. Region, stores, country, transaction etc
2. UI Preview of Alert Groupings
3. Sorting - Filters : Priority, Status, Case connections, etc
4. Ad Hoc - Filter and export - XLS



# Typical User : L1 Investigator

The screenshot displays the 'ALERTS QUEUE / ALERT ID# 91862' interface. It includes a top navigation bar with 'ALERT ACTIONS'. The main content area is divided into several sections:

- Transaction ID# 8251647400**: Amount \$50.00, Date 10/11/2019, Priority HIGH.
- Reviewer Comments**: A comment box with the text 'reason to reject valid email, same business'.
- Alert Details**: Alert ID# 91862, Alert Status NEW, Alert Subject Money Order: SAR Connection.
- Connections to Risky Communities**: A section showing 2 Visitors. Below this is a table with columns: ALERT CREATED AT, CONNECTION TYPE, and TRANSACTION #.
- Risky Signals from Similar Orders**: A table with columns: ALERT, ALERT STATUS, ALERT SUBJECT, CASE CONNECTIONS, PHONE, EMAIL, EMAIL AGE, LOCATION, IP ADDRESS, VISITOR, CARD, and DEVICE.

| ALERT      | ALERT STATUS       | ALERT SUBJECT               | CASE CONNECTIONS | PHONE | EMAIL | EMAIL AGE | LOCATION | IP ADDRESS | VISITOR | CARD | DEVICE |
|------------|--------------------|-----------------------------|------------------|-------|-------|-----------|----------|------------|---------|------|--------|
| THIS ALERT | NEW                | Money Order: SAR Connection |                  |       |       |           |          |            |         |      |        |
| 23650      | FOLLOWED UP        | Money order: SAR Connection |                  |       |       |           |          |            |         |      |        |
| 65663      | OPEN - IN PROGRESS | Wire: Transfer over limit   |                  |       |       |           |          |            |         |      |        |

## Alert Detail - Actions

1. Details of Why Alert was flagged
  - a. Header data
  - b. Region, stores, country, transaction etc
2. Risky Connection
  - a. Known lists
  - b. SARS
  - c. Other Cases
  - d. Custom TGraph Algorithms
3. Alert Actions
  - a. Status or Progress
  - b. Feedback Look - to TGraph model and learning
  - c. History (similar to case)
  - d. Comments (similar to case)

The 'Alert Actions' modal window is shown, featuring tabs for 'ACTIONS', 'HISTORY', and 'COMMENTS'. It includes a dropdown for 'Your decision for this alert:' with the option 'Close - No Action'. Below this is a 'Reason for action:' section with checkboxes for 'Shared connections between people & devices', 'Ip addresses across many locations', 'High Transactional Volume', and 'Shared connections to high risk communities'. There is also a text input for 'Action comments here'. At the bottom, there is a toggle for 'Alert in the future when risk is:' with a color-coded scale from 0 to 100, and a 'SUBMIT' button.

# CASE MGT - CASE DETAIL - INVESTIGATION

# Typical User : L1-L3 Investigator

## Case Management - Actions

1. Alert Association
2. Subject Information
3. Suspicious Activity
4. Locations
5. Non-Obvious Relationships
6. Print - Multiple form options
  - a. SAR Form
  - b. CTR Report
  - c. Form 8,300
  - d. Custom templates
7. Export - CSV, XLS
8. Individual section export - XLS
  - a. Alerts in a case
  - b. Subjects of case
  - c. Activity
  - d. Non-obvious relationships

The screenshot displays the Mercury Experto S...docx application interface. The main window is titled 'CASES / CASE ID# C3450.2'. It features a navigation bar with tabs: 'New', 'Open - In Progress', 'Open - Verified', 'Follow-up', and 'Closed'. Below the navigation bar, there is a 'Summary' section showing 'NEW: 2020-12-28 12:53:05' and 'LAST MODIFIED: PIM'. The main content area is divided into three sections: 'Associated Alerts (4)', 'Part I: Subject Information (3)', and 'Part II: Suspicious Activity (3)'. The 'Associated Alerts' section shows a table with columns: ALERT, ALERT STATUS, PRIORITY, VENDOR, and ALERT SUBJECT. The 'Part I: Subject Information' section shows a table with columns: ID, NAME, AKA, TYPE, CATEGORY, DOB, ADDRESS, and POSTAL. The 'Part II: Suspicious Activity' section shows a table with columns: DATE, LOCATION, and DESCRIPTION. A 'Case Actions' modal is open, showing options for 'Your decision for this case' (Close, Open - In Progress, Open - Verified, Follow-up, Closed) and 'Reason for action' (Action comments here). The modal also includes a 'PRINT' section with options for SAR Form, CTR Report, and Form 8300, and an 'EXPORT' section with options for CSV and XLS. The bottom of the screen shows a 'Page Size' dropdown set to 10, and a 'Export CSV' button.

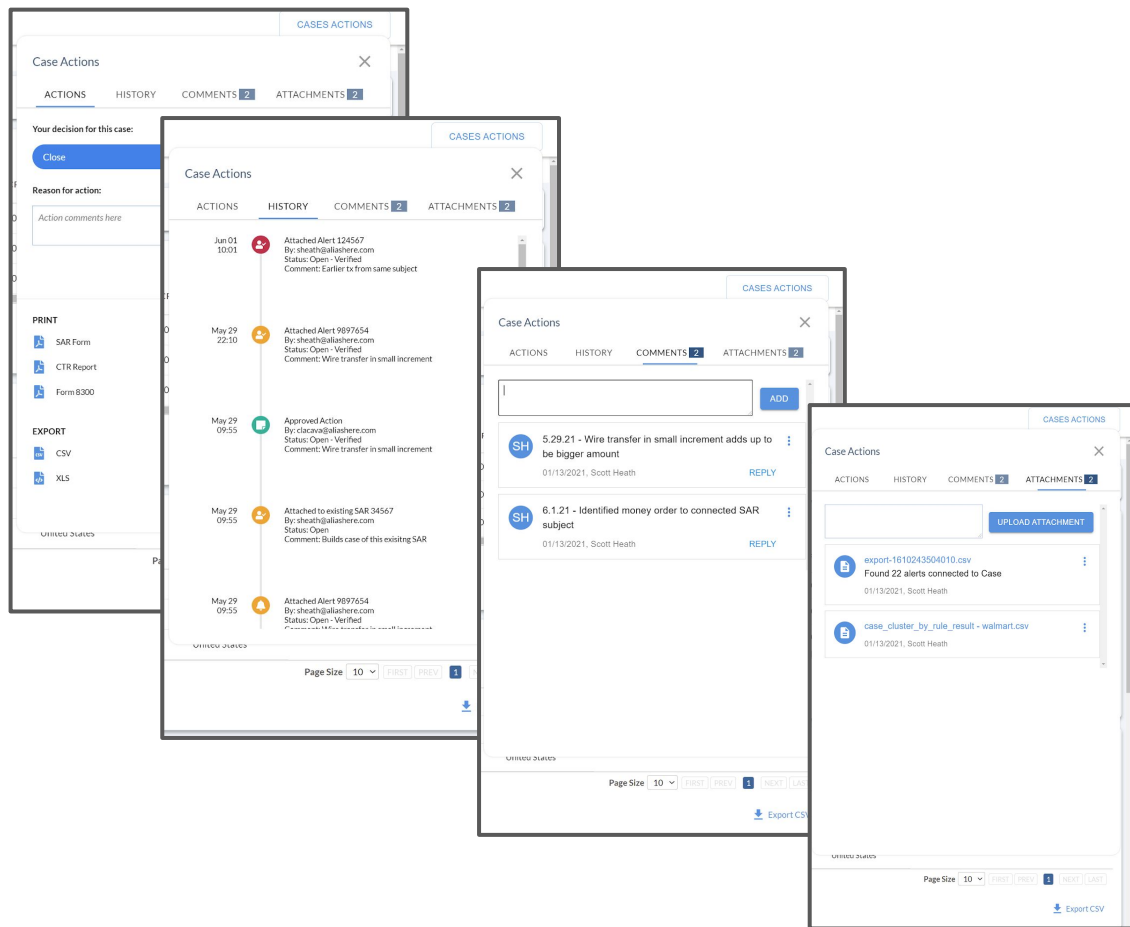
| ALERT | ALERT STATUS | PRIORITY | VENDOR                       | ALERT SUBJECT               |
|-------|--------------|----------|------------------------------|-----------------------------|
| 58480 | NEW          | HIGH     | Welch-Altenwerth             | Money Order: SAR Connection |
| 60222 | NEW          | HIGH     | Weyman, Rollson and Macquibb | Money order: SAR Connection |
| 48359 | NEW          | HIGH     | Murphy-Stark                 | Money order: SAR Connection |
| 91562 | NEW          | HIGH     | Bauch-Crist                  | Money Order: SAR Connection |

| ID | NAME         | AKA    | TYPE       | CATEGORY | DOB        | ADDRESS             | POSTAL |
|----|--------------|--------|------------|----------|------------|---------------------|--------|
| 7  | Bibby Burn   | Bibby  | Individual | PEP      | 11/30/1963 | 9242 Risk Drive     | 14619  |
| 9  | Owen Nulley  | Owen   | Individual | PEP      | 10/1/1986  | 3389 Emmet Junction | 20167  |
| 11 | Hannle Grise | Hannle | Individual | PEP      | 10/1/1929  | 85 Darwin Street    | 29216  |

| DATE        | LOCATION | DESCRIPTION                  |
|-------------|----------|------------------------------|
| Jan 1, 2021 | In-Store | Wire: 2345677 to McCain John |
| Jan 2, 2021 | Online   | Wire: 2345677 to McCain John |
| Jan 2, 2021 | In-Store | Wire: 2345677 to McCain John |

Mercury Experto S...docx

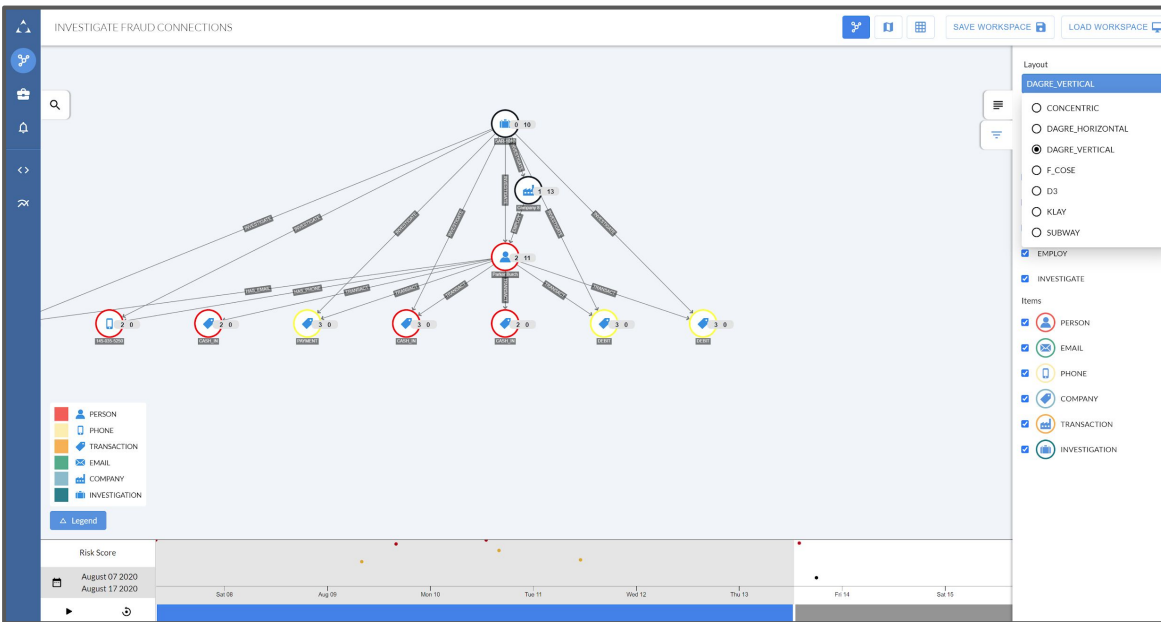
# Typical User : L1-L3 Investigator



## Case Actions

1. History - Audit Trail of Actions
  - a. Date - Time Stamps
  - b. Details
  - c. Actions
  - d. Ad Hoc - Export XLS
2. Comments
  - a. Case Notes
  - b. Date - Time Stamps
3. Attachments
  - a. Any Data Type
  - b. Comments
  - c. Date - Time Stamps

# Typical User : L1-L3 Investigator



## Investigation - Case

1. Node and connection investigation
2. Drag & Drop
3. Time - Control over time band
4. Play Time - Run time slider that automatically slides time
5. Color Treatment
6. Layout - Visualization Options
7. Node Detail - Flyout out views

## Team Sharing

1. Save Workspace - JSON
2. Load - Shared JSON
3. Attach to Case