Altair® Panopticon™

VISUAL DATA DISCOVERY THROUGH

PANOPTICON REAL TIME

Allows users to analyze fully interactive dashboards via web browsers. Also provides:

- Data Shaping and Data Aggregation
- Data Caching
- PDF Report Generation
- RESTful APIs
- Task Scheduler for Reports and Exports
- Single Sign-On Integration with SAML and OAuth2
- Alerting Engine

PANOPTICON STREAMS

Stream Processing including:
- Real Time Data Prep
- Aggregation Engine
- Calculation Engine
- Alerting Engine

DASHBOARD DESIGN IN THE BROWSER

Allows users to build analytical real time HTML dashboards, with drag-and-drop, low-code/no-code in the browser.

SYSTEM REQUIREMENTS

PANOPTICON REAL TIME

- Apache Tomcat 9.0.x
- Oracle Java SE 8, Open JDK 8, Oracle Java SE 11, and Open JDK 11 are supported.
  NOTE: Using Java 11 requires installation of the dependency files that are distributed with Panopticon Real Time.
- Amazon Web Services (AWS), MS Azure, Google Cloud Platform, Oracle Cloud, Docker Linux
- 8 CPU Cores (Minimum for Production Usage)
- 4GB free disk space and at least 16GB available RAM
- In Memory Caching / Data Extracts limited to available Server RAM

PANOPTICON STREAMS

- Apache Tomcat 9.0.x
- Oracle Java SE 8, Open JDK 8, Oracle Java SE 11, and Open JDK 11 are supported.
  NOTE: Using Java 11 requires installation of the dependency files that are distributed with Panopticon Streams.
- Amazon Web Services (AWS), MS Azure, Google Cloud Platform, Oracle Cloud
- 8 CPU Cores (Minimum for Production Usage)
- 16GB free disk space and at least 16GB available RAM
- Confluent 4.11 Kafka Distribution including:
  - Zookeeper, Schema Registry, Kafka

ANALYST (WEB CLIENT)

- Latest version of Chrome, Safari
- 2GB available RAM

DEPLOYMENT

- Single server or Enterprise Cluster
- Panopticon Real Time and Panopticon Streams can be deployed on-premises or in the cloud. Multiple servers can run in a cluster with automatic content synchronization. Docker container deployment is supported.

LOCALIZATION & TRANSLATION

- Panopticon supports localization, including non-Latin alphabet languages.
- UI translations to Chinese, Japanese, and Korean are included in the product.

MAJOR STREAM PROCESSING FEATURES

REAL TIME DATA PREP

- Join
- Branch
- Union
- Pulse
- Filter
- Conflate

STREAM INPUT

- Producing Topics, Tables, and Global Tables
- Kafka Topics
- Alternative Streaming Sources
- Polling Reference and Historical Sources

STREAM OUTPUT

- Kafka Topics
- Email
- kdb+
- InfluxDB
- SQL JDBC Databases
- MQTT
- REST service
- Text (CSV)

AGGREGATION

- Windowed
- Min, Max, Avg, Count, Samples, First, Last, StdDev, Var, Sum

CALCULATE

- Add / Replace / Remove Fields
- Conditional Functions
- Casting of Fields
- Numeric Functions
- Time Functions
- Text Functions

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MAJOR VISUAL DESIGN & ANALYSIS FEATURES

REAL TIME STREAMING & REAL TIME UPDATES

- Display Real Time Streaming Dashboards
- Push Subscribe for Streaming Sources
- Automatic Pull for non-Streaming Sources
- Pause Data Updates as required
- Alerts on off-limit values
- Investigate by jumping from real time to historic data
- Throttle Subscriptions to minimize CPU and Memory
- Show latest or scrolling time windows
- Process Full or Filtered Data Requests and Subscriptions

INTRA DAY & HISTORIC TIME SERIES

- Display Time series from Years down to Nanosecond
- Playback through time
- Select Tick time, or calendar time to playback
- Resample from barred down to transaction level
- Fill forward (interpolate)

VISUAL ANALYSIS

- Pre-Attentive Techniques
- High density displays
- Peer Comparisons
- Hierarchical displays
- Dynamic selection of visible detail level (Depth)
- Trend, Clustering and Outlier detection
- Numeric and Categorical Correlations
- Relationships
- Cross Tabbing
- Brushing and Visual Filtering

HIERARCHY ANALYSIS

- Hierarchical displays
- Dynamic hierarchy rearrangement
- Multiple concurrent hierarchies
- Aggregation (Additive) with over 25 aggregates supported
- Non-additive external aggregate retrieval for complex risk scenarios

CUSTOM UI BUILDING

- Various UI Form Controls
- Parameterization
- Data Entry
- Actions – Navigation, URL, Script and Data Update
- Web API for integration into larger web portals

DATA CONNECTIVITY

TICK DATA CONNECTIVITY

- OneMarketData OneTick
- OneTick Cloud
- Kx kdb+
- InfluxDB
- Shakti
- Native Connectivity
- Request / Response
- Subscriptions

MESSAGING STREAMING CONNECTIVITY

- Apache/Confluent Kafka (Subscribe / Publish)
- ksqlDB
- JMS (e.g., ActiveMQ)
- Solace
- 60East AMPS
- RabbitMQ
- Web Socket
- JMX
- Google Cloud Pub/Sub
- MQTT
- Amazon Kinesis
- Redis Streams
- DolphinDB

EVENT PROCESSING CONNECTIVITY

- Kx kdb+Tick
- OneMarketData OneTick CEP
- Tibco Streambase CEP
- Tibco LiveView DataMart
- SAP Sybase ESP
- Panopticon Streams

BIG DATA CONNECTIVITY

- Apache Hadoop Hive
- Cloudera Impala
- Apache Spark SQL
- Apache / Datastax Cassandra
- Elasticsearch 6.x and 7.x
- Livy Spark (PySpark)
- IBM Cloudant
- Splunk
- XMLA such as ActivePivot

GENERAL CONNECTIVITY

- MS Excel
- Text, XML, JSON, HTML tables, Arrow IPC files
- Amazon S3, Google Cloud, MS OneDrive, and Azure
- Google Analytics
- Altair AI Hub, Altair IoT Studio, and Altair IoT Studio Write
- Restful Web Services (Returning Text, XML or JSON)
- JDBC Databases including Cloudera Impala, MySQL, Oracle, PostgreSQL, Spark SQL, IBM DB2, Greenplum, MS SQL Server, Sybase IQ, Sybase ASE, Teradata, Vertica

CUSTOM CODE AND ML MODEL SCORING

PYTHON, R, JAVA, AND REST APIS

- Embedded as part of the data pipeline
- Additionally, act as a separate data source
- Dynamically change script execution via parameters

DATA VISUALIZATIONS

COMBINATION GRAPHS

- X-Axis Graph
- Y-Axis Graph
- Time Axis Combination Graph (Legacy)
- Numeric Axis Combination Graph (Legacy)
- Text Axis Combination Graph (Legacy)

TIME SERIES

- Candlestick / OHLC Graph
- Horizon Graph
- Line Graph
- Needle Graph (Standard / Stacked / Grouped)
- Order Book
- Price Band
- Spread Graph
- Stack Area Graph
- Table with Micro Charts
- Timeseries Scatter Plot
- Timeseries Surface Plot

SNAPSHOT & TIME SLICE

- Bar Graph (Horizontal / Vertical)
- Box Plot
- Bullet Graph (Horizontal / Vertical)
- Categorical Line Graph
- Circle Pack
- Donut Chart
- Donut Gauge

- Dot Plot (Horizontal / Vertical)
- Funnel Chart
- Heat Matrix
- Map Plot
- Network Graph
- Numeric Line Graph (Horizontal / Vertical)
- Numeric Needle Graph (Standard and Stacked)
- Pareto Chart
- Pie Chart
- Record
- Scatter Plot
- Scatter Plot 3D
- Shapes / Choropleth
- Surface Plot
- Surface Plot 3D
- Table with Micro Charts
- Ticker Tile
- Treemap (Classic, Cluster, and Window)
- Waterfall Chart

FILTERING & DATA CAPABILITIES

- Casting, Renaming and Setting Display Formats
- Calculations including Time Series
- Time and Numeric Bucketing
- Custom Groups
- Visual Filtering
- Categorical filtering via check list, radio list and free text entry
- Numeric Range and Percentile Distribution Filters
- Time Window Filtering and Snapshot Time Selection
- Parameterization