

# Spotfire X with the All New A(X) Experience

## An Overview

### BENEFITS

#### GET FASTER INSIGHTS

Spotfire helps everyone find insights from data faster. Type a few letters in the search bar, and Spotfire analytics builds relevant charts and brings up quick contextual actions for matched records, files, help, etc. Click a metric of interest and the AI-powered recommendations engine (supplying data science and machine learning under the hood) reveals outliers, relationships, and data structure, shown with simple text explanations. Or filter, mark, drill, brush, pan, and zoom to fine tune your insights and share with your team. Anyone can get started easily, and everyone will find the answers they are looking for in the fastest possible time, with the least possible effort.

#### COMBINE REAL-TIME DATA WITH HISTORICAL DATA

TIBCO is the first in the industry to introduce real-time, streaming data to an enterprise-class analytics platform. With Spotfire analytics, you can combine streaming and historical data to uncover the reasons for what's happening in the moment, and take action to change the future.

#### ENJOY ULTIMATE PERFORMANCE

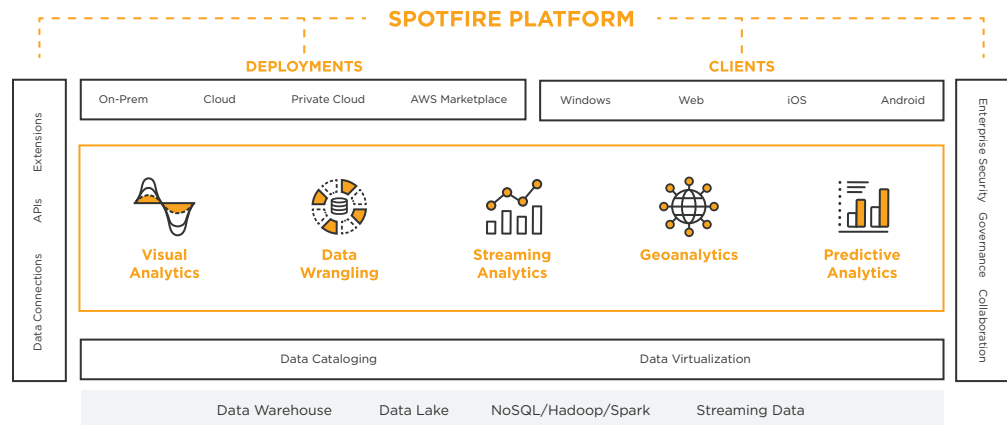
Spotfire analytics has a hybrid memory approach that delivers the same agile experience for data of any size or type. You can push lightning fast queries directly to the cluster, or with the latest memory compression and reuse algorithms, support more users on the same hardware for extracted data. Or point to real-time operational sources and enjoy the same interactive experience on data that changes multiple times per second. Spotfire analytics scales to support high-performance analytics for any application.

### A(X) EXPERIENCE: ANALYTICS, ACCELERATED

The new TIBCO Spotfire® A(X) Experience makes it fast and easy for everyone to benefit from data, whether they are just getting started with data analytics or an expert trying to develop deeper insights. It's a fusion of agile, automated, and AI-driven analytics approaches along with native real-time awareness capabilities. Now anyone can seize new business opportunities and avoid risks with unmatched speed and flexibility using insights generated by Spotfire® analytics on every kind of data.

### WHAT IS SPOTFIRE?

The Spotfire platform delivers self-service analytics for everyone and works with all kinds of data: data at rest and in motion (including real-time streaming data). Its completely reimagined user experience helps people get faster and better insights from more data — and data as it's generated in real time. The Spotfire platform offers visual analytics, data wrangling, streaming analytics, geoanalytics, and predictive analytic capabilities packaged in a beautiful user experience.



### A Complete Analytics and BI Solution

#### VISUAL ANALYTICS

The Spotfire platform is designed to deliver insights faster than any other analytics tool. Countless engineering hours went into aligning the experience with how we naturally interact with the world. Users can grab the data they want, look at it from different perspectives, and speed through views to see relationships and gain insight. If they spot data quality problems, Spotfire analytics helps them fix the problems right there while automatically capturing all the transformations without breaking the flow. This agile but also automated experience is the foundation, allowing people to answer questions faster than they can think of them.

### SOLVE TOUGH PROBLEMS

The simple, quick Spotfire A(X) Experience belies its depth and power. Unlike limited visualization-only tools, Spotfire analytics natively runs thousands of machine learning and statistical methods via the embedded commercial R, and now TIBCO Statistica™ engines. Spotfire maps support multiple interactive layers with precise distances, multiple geographic projections, connectivity to TIBCO services for address level geocoding, fuzzy matching, route optimization, and other powerful geoanalytics capabilities. These advanced analytics along with native streaming, enable Spotfire analytics to extend the reach of BI to operationally intensive businesses such as manufacturing, supply chain, capital markets, and IoT, though native support for real-time data.

### BUILD PROCESS-SPECIFIC APPLICATIONS

Spotfire analytics makes it extremely easy to build and deploy process specific applications. Users find it easy and intuitive to point and click their way through Spotfire guided process-specific applications. Our customers and partners use out-of-the-box Spotfire capabilities and rich APIs to build and deliver solutions with connectivity to proprietary data, custom visualizations, custom computations and statistical methods, and to drive actions across multiple systems.

### EMPLOY MODERN ARCHITECTURE & GOVERNANCE

Spotfire analytics has been optimized for scaled, secure deployments to very large, geographically distributed organizations. As one of the earliest cloud analytics solutions, the Spotfire platform has modern and mature automated administration capabilities. The same service-oriented architecture is in the cloud, on premises, and in hybrid deployments, so every customer can enjoy smooth onboarding and worry-free upgrades performed either by TIBCO or your own IT organization.

The new user interface with natural language search, AI-powered insights, and simplified menus have made Spotfire analytics even easier to use for exploring and visualizing data, and for building rich interactive analytic dashboards and applications. Filtering, marking, drill-downs, and data wrangling—everything is performed visually to help you get to the insights fastest and in the most intuitive way.

- **Natural Language Search**

With natural language search, Spotfire analytics is now offering a search-driven analytics experience. By typing into the search bar, users create charts, get AI-powered recommendations, find data to mark, and launch tools. The search bar becomes the command-line from where you can run everything.

- **AI-Powered Insights**

In a scalable and robust manner, an artificial intelligence engine now identifies key relationships between columns, which are then used to recommend visualizations for insight discovery. These insights are presented in the context of what the user is doing. Users can discover trends, outliers, and patterns in any data without having to know its structure!



Spotfire Visual Analytics

### COLLABORATION

Spotfire analytics makes it easy to share insights with anyone for collaborative decisions with one-click web publishing in dashboards. Threaded discussions, annotations, and filtered analytics views show exact context for the insights. The Spotfire library stores analysis files, statistical scripts, and information links, to maximize productivity among users.

## JETBLUE

“We set up a real-time data and integration platform using TIBCO technologies, so we have real-time flight and passenger information...Other units heard about what we were doing and wanted to get on board. As it's been catching on, we've grown the team, but we still only have about 10 folks supporting over 400 authors. Everyone in the enterprise is using Spotfire to some extent.”

—Andi Azzolina,  
Director of Shared  
Development Services

## MERCEDES-AMG PETRONAS MOTORSPORT

“Spotfire is a fantastic tool... What we have to have in place are links between Spotfire and our own internal data sources to make sure that we consume that data and visualize it in a strong way...We've developed systems that allow us to bolt straight into our strategy to extract how overtakes happen and where they can be visualized, and the same on our simulation side, we make sure that we can see the outcome of it and really dig down into the depth of the data.”

—James Vowles,  
Chief Strategist

## MOBILE

Spotfire analytics has Android and iOS apps that make it a breeze to get insights on the go. It allows dashboard authors to confidently deploy the same application to multiple form factors knowing the Spotfire platform will adapt and deliver a great experience on any device.

## DATA WRANGLING

As users interact with data, Spotfire data wrangling helps fix data quality problems, inconsistencies, and deficiencies. Users don't need to go outside of the Spotfire system to prepare data before visualizing. They can combine, shape, clean, enrich, and transform data, all while doing data exploration. While the user is doing all this, in parallel, Spotfire analytics automatically captures the dataflow:

- **Automatic Dataflows**

Spotfire analytics automatically captures all transformations and data wrangling steps and lays them out in the data canvas as a fully editable dataflow. Users can edit everything in the dataflow and share the steps for reuse by others in the organization.

Spotfire analytics makes it easy to connect, combine, and visualize data from files, relational and NoSQL databases, OLAP, Hadoop, and web services—and also from cloud applications like Google Analytics and Salesforce.com. More than 50 streaming data sources from IoT (MQTT, OSI PI), social (Twitter), and messaging applications (TIBCO, JMS, Kafka) can be readily integrated with at-rest data for real-time contextual analysis using TIBCO Spotfire® Data Streams. The Spotfire system has a differentiating hybrid in-memory/in-database analytics architecture that provides the flexibility needed to support the most demanding enterprise needs, easily scaling to thousands of users and limitless rows of data.

## STREAMING ANALYTICS

For the first time, real-time streaming data is coming to an enterprise-class analytics platform bringing real-time situational awareness about any operational system to users' fingertips. TIBCO Spotfire Data Streams, an add-on to Spotfire analytics, allows instantaneous access to more than 50 streaming data sources. With Spotfire analytics, you can combine streaming and historical data to understand the reasons for what's happening in the moment, and take actions to change the future. Business intelligence can now address mainstream operational intelligence and IoT situations where it's too late if data is not analyzed and acted upon as soon as it's generated.

## GEOANALYTICS

Spotfire analytics offers instant multi-layer maps, geocoding, and reverse geocoding out-of-the-box. By bringing real-world context to the analysis, maps are unique in their ability to help generate insights and make predictions that would not be possible using traditional tables and charts. Spotfire dashboards visualize data and output results on multilayer maps and custom charts while deeper geoanalytics is done using the built-in TIBCO® Enterprise Runtime for R (TERR) engine and TIBCO® Geoanalytics.

**USDA**

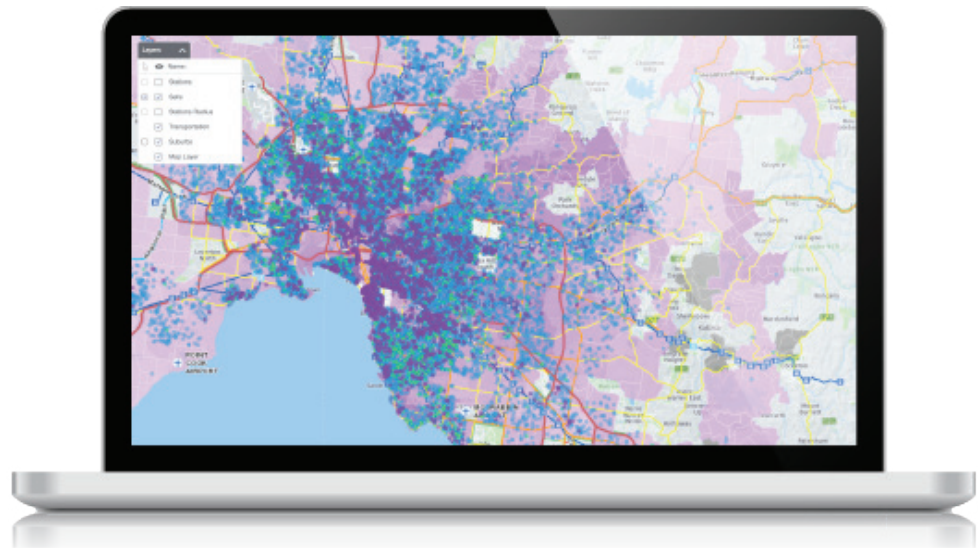
“One of the key things that attracted us to TIBCO Spotfire analytics was that it was easy to install, easy to create visualizations that people could use, and easy to learn on the fly. With the Spotfire platform, we haven't had to work so hard to incite change.”

—Darryl Earnest,  
Deputy Administrator

**RITEWAY FOODS**

“TIBCO sets itself apart with interactive visualizations and built-in predictive modeling. You click on a graphic and subsequent visualizations show which data it affects. It's a wow factor that has set us apart...For our division, Spotfire absolutely paid for itself within the first year.”

—Elisa Westlund,  
Director of Insights,  
Analytics, and Marketing

**Unparalleled Location Analytics****PREDICTIVE ANALYTICS**

Spotfire analytics has many built-in one-click predictive methods that are available to use for classification, clustering, and forecasting, making it very easy for anyone to get started with predictive analytics. Data and results could be visualized in Spotfire interactive dashboards, while the data science and underlying calculations can be done using the TIBCO® Data Science platform or analytics from R, Python, SAS, and Matlab via Spotfire Data Functions.

**FEATURES AND CAPABILITIES****ANALYTICS**

- Natural Language Query
- AI-powered insights
- Visualization recommendations
- Interactive dashboards and analytics applications
- Filtering
- Brush-linking
- Maximize/Minimize visualization
- Line similarity
- K-means clustering
- Hierarchical clustering
- Data relationships
- Data functions
- Curve fit
- Regression modeling
- Classification modeling
- Tags
- Lists
- Custom tool

**SHARING AND COLLABORATION**

- Bookmarks
- Conversations
- Annotations
- Export to PDF, PowerPoint, image, data to file (.txt, .stdf, .sbdf, .xls, .xlsx, .xml)
- Library management
- Custom export

**DATA ACCESS - FILE FORMATS**

- Comma-separated values (.csv)
- ESRI shape files (.shp)
- Microsoft Excel workbooks (.xls, .xlsx, .xlsb, .xlsm)
- Log files (.log)
- Spotfire text data format (.stdf)
- Spotfire binary data format (.sbdf)
- Text (.txt)
- Spotfire DecisionSite files (.sfs)
- SAS data files (.sas7bdat, sd2)

**FILE FORMATS CONTINUED**

- Microsoft Access databases (.mdb, .mde)
- Universal data link (.udl)
- Clipboard
- Custom file data source

**DATA ACCESS - RELATIONAL DBMS**

- Amazon Redshift
- Amazon EMR Hive
- Amazon EMR Spark SQL
- Amazon RDS SQL Server
- Apache Hive™
- Apache® Drill
- Apache Spark™ SQL
- Attivio AIE®
- Attivio® Semantic Data Catalog
- Cloudera Hive
- Cloudera Impala
- Cloudera Spark SQL
- Databricks Cloud
- Hortonworks Hive
- Hortonworks Spark SQL
- HPE Vertica
- IBM BigInsights Hive
- IBM DB2
- IBM Netezza
- MapR Hive
- MapR Spark SQL
- Microsoft Azure HDInsights Hive
- Microsoft Azure SQL
- Microsoft Azure SQL Datawarehouse
- Microsoft SQL Server
- Oracle
- Oracle MySQL
- Pivotal Greenplum
- Pivotal HAWQ
- PostgreSQL
- SAP HANA
- TIBCO® Data Virtualization
- Teradata
- Teradata Aster

**DATA ACCESS - MULTIDIMENSIONAL DBMS**

- Microsoft SQL Server Analysis Services
- Microsoft Azure Analysis Services
- Oracle Essbase
- SAP BW (NetWeaver Business Warehouse)

**DATA ACCESS - APPLICATIONS**

- Salesforce.com
- Google Analytics

**DATA ACCESS - STREAMING DATA**

- Apache Kafka®
- TIBCO Enterprise Message Service™
- JMS
- WITS, WITSMML
- OsiPi
- IBM MQ
- MQTT
- RabbitMQ
- TIBCO eFTL™
- Apache Hadoop®
- Apache HBase®
- Apache Cassandra®
- Apache Kudu™
- Salesforce Streaming
- Change data capture
- FIX
- Capital market exchanges

**DATA ACCESS - APIS**

- ODBC
- JDBC
- OData
- Custom data source

**DATA PREPARATION**

- Audit and author data table workflows
- Add calculated column
- Join tables (Add columns)
- Union tables (Add rows)
- Replace data table
- Split column
- Replace empty values
- Change data type
- Insert data function
- Add hierarchy
- Normalization
- Pivot
- Replace value
- Unpivot
- Set data table properties
- Set column properties
- Custom data transformation

**DATA VISUALIZATION**

- Table
- Cross table
- Bar chart
- Line chart
- Map chart
- Pie chart
- Scatter plot
- Heatmap
- Treemap
- Parallel coordinate plot
- KPI chart
- Waterfall chart
- Graphical table
- 3D scatter plot
- Summary table
- Box plot
- Lines and curves
- Custom visualization

**APPLICATION BUILDING**

- Embedding / Javascript API
- Text area with input controls
- Scripting
- Document properties

**ADMINISTRATION - SYSTEM ADMINISTRATION**

- Resource management
- Deployment and package management
- Monitoring and diagnostics
- Automation services
- Co-branding / White labelling

**ADMINISTRATION - AUTHENTICATION**

- Built in user and group management
- LDAP
- Windows NT domain
- NTLM
- Kerberos
- X.509 certificates
- OpenID Connect
- Custom JAAS authentication
- Custom web authentication
- Two-factor authentication

**ADMINISTRATION - AUTHORIZATION**

- Feature access control
- Preferences
- Analytic asset access control

## SPOTFIRE CLIENTS

### TIBCO SPOTFIRE ANALYST

Web or Windows client analysis, authoring and consumption of analytic applications and dashboards.

### TIBCO SPOTFIRE BUSINESS AUTHOR

Web client analysis, authoring and consumption of analytic applications and dashboards.

### TIBCO SPOTFIRE CONSUMER

Web or Windows client consumption of pre-defined analytic applications and dashboards.

In addition, Spotfire offers iOS and Android apps.

## ENTERPRISE ANALYTICS

Spotfire analytics supports the smallest implementations to the largest, most-demanding global deployments with unparalleled performance, scalability, and security. Spotfire Analytics is deployed in the world's largest companies in consumer packaged goods, energy, financial services, life sciences, manufacturing and industries. Administrators can be confident that business-critical analytical applications perform as needed using capabilities such as redistribution of resources for multiple workloads and SLAs, addition and deletion of nodes and service instances, and smart routing and resource pools. Spotfire analytics works within existing enterprise IT systems and security models and is backed by TIBCO's global domain expertise and 24x7 customer service.



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