

Technical Summary
of New Features

OpenText Analytics Suite 16

Introduction

In today's digital world, organizations need to process ever-larger, more complex, and more varied sources of data. They also face growing demands from employees, customers, and partners to engage with information on a self-service basis, quickly, easily, and on any device. They want high-scale, mobile-ready, on-demand analytics enhanced with interactive reports and compelling visualizations.

OpenText™ Analytics Suite 16 is an integrated solution for both these needs – experts' demands for broader and more powerful data exploration, and business users' need for easy access. The suite consists of OpenText™ Big Data Analytics and OpenText™ Information Hub (iHub), which draw on the company's Actuate heritage, and associated development tools. All products in the suite have been updated and rebranded consistent with the OpenText Release 16 look and feel.

This release provides a deeper level of integration between reporting and advanced analytics by integrating Information Hub and Big Data Analytics, making this the only integrated solution for predictive and embedded analytics and reporting, serving both business and technical users. OpenText Analytics Suite 16 also makes it easier and faster to deploy applications to the cloud with a set of new analytics appliances with high availability cloud support. It offers the flexibility to be deployed on-premise, in the cloud, as a managed service, or in a hybrid environment.

With OpenText Analytics Suite, users can read virtually any data source, from structured to unstructured data, from the simplest flat files to the most complex databases and online data sets, so data from all sources is available in one place. The suite includes connectors for multiple disparate data sources and a remote data provider option for loading data from a web address. It features common, shared services, such as single sign-on, single security model, common access, and shared data.

Additionally, iHub accesses the Big Data Analytics engine and analysis results to visualize and socialize them. The solution includes broadly functional, well-documented APIs, such as IDAPI, REST, and JavaScript, to make embedding analytics content fast and easy.

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Overview

Analytics Suite 16 includes enhancements that:

- Help end users create and lay out better web reports
- Simplify access to advanced analytics
- Make it easier to connect to and consume data
- Provide fast analytics deployment to the cloud

The features introduced in Analytics Suite 16 include:

- OpenText™ Analytics Studio redesign with Smart Web Layout and data preview
- Entirely new OpenText™ Big Data Analytics user interface
- Improvements to iHub Data Models support more complex join requirements
- New data drivers for REST, Apache Spark, and MongoDB
- Tighter integration between iHub and Big Data Analytics
- New analytics appliances for the cloud

This document describes these and other new capabilities in more detail.

Deeper Suite-Wide Integration for OpenText Analytics Release 16

Release 16 of the OpenText Analytics suite closes the gap between reporting and advanced analytics by integrating the former Actuate products Information Hub (iHub) and Big Data Analytics and supporting tools, making this the only integrated solution for predictive and embedded analytics and reporting that serves both business and technical users.

Release 16 offers three ways to share results from Big Data Analytics by publishing the results directly on iHub, Analytics Studio, or OpenText™ Dashboards. In addition to iHub's existing ability to connect to FastDB using an ODA (Open Data Access) connector, iHub 16 adds two options for bringing data from Big Data Analytics: importing a Data Resource from Big Data Analytics into iHub (where it is automatically saved as a Data Object), or importing to iHub as a report design. Once published, these results can be used within reports and dashboards, securely distributed to users creating their own reports in Analytics Studio, or embedded within applications.

Meanwhile, developers can take reports that have been created in the ways outlined above and modify them in OpenText™ Analytics Designer, including adding other data sources or customizing the format (e.g. applying a company's color scheme and layout).

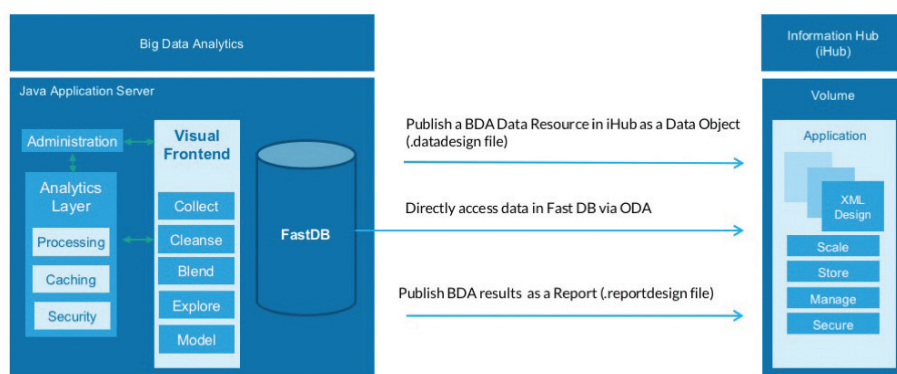
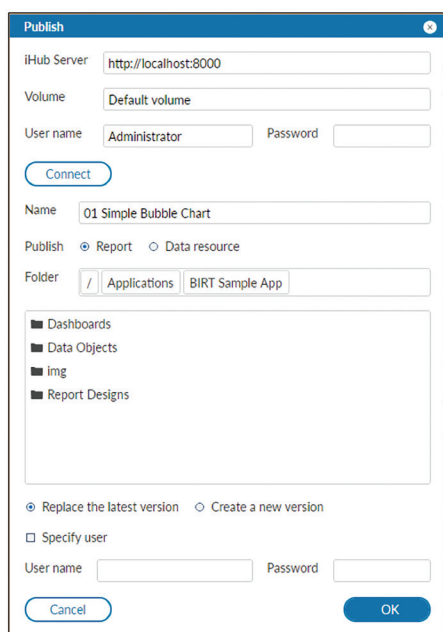


FIGURE 1:

*Sharing and publishing
Big Data Analytics results*

**FIGURE 2:**

Publish results from Big Data Analytics to iHub as a report or data resource

OpenText Analytics Suite 16 improves on self-service analytics by providing totally redesigned user interfaces. Both Analytics Studio and Big Data Analytics user interfaces have gone through complete redesigns, making them easier to use while providing more access to complex data and advanced analytics. Further, they have been rebranded to be consistent with the OpenText Release 16 look and feel.

New Features in iHub 16

Analytics Studio redesign

Analytics Studio is a web-based, self-service reporting tool deployed on OpenText Information Hub (iHub) that empowers non-technical business users to create and share interactive reports and BI content without IT support. Reports can be as simple as a single table or as complex as interactive tabular or crosstab reports with data drill-down and visualizations.

Ad-hoc reporting is especially helpful for letting business users explore their organization's data spontaneously, whenever new situations come up. Instead of being locked into pre-set queries and reports or having to seek expert help to build new queries, non-technical users can speedily ask whatever questions they want.

Moreover, they can upload their own data to enrich the overall scheme. And non-technical users don't need an in-depth understanding of the data sources because Analytics Studio draws on iHub Data Objects and Data Models that shield users from too much complexity by exposing table and field names in user-friendly terms. Whenever the managers think of a new query to make against the mass of company-wide sales data, Analytics Studio gives them the freedom to do so, without delays or increasing the IT workload.

Web-based Ad-hoc reporting provides many benefits:

- Business users get answers to their questions in a timely manner.
- Users can easily adapt to a changing business environment.
- An ad hoc reporting tool such as Analytics Studio does not require extensive training. Users simply drag and drop report elements into the layout pane to create a report.
- No installation is required because the ad hoc reporting tool is web-based. The tool is quickly deployed to users via a browser.
- Business users can build their own reports, greatly reducing the burden on IT.
- Users can collaborate and share reports on the web.

For example, in a company continuously rolling out new products, individual product managers can build their own reports focusing on the parameters they are most interested in at a given time, whether it's profit margins, sales performance by territory or season, or comparing sales of a new product to an existing one (e.g. to see if it is cannibalizing the older product's revenue stream).

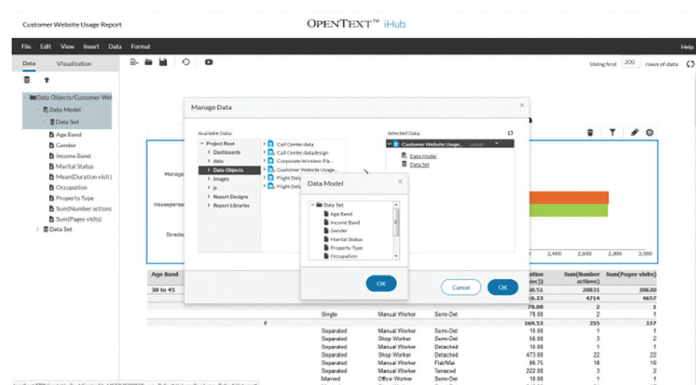
Analytics Studio has a redesigned graphical interface that gives users more flexibility and convenience. They are no longer tied to the formats of pre-set templates. Now, they can create reports in any format by dragging and dropping data and visual elements such as tables, crosstabs, and charts into the layout pane. Users can format and rearrange visual elements, sort, group, and filter data, and create computed columns and aggregate data. They can also run, view, and modify reports in OpenText™ Interactive Viewer and perform ad hoc analysis.

New Analytics Studio features available in Analytics Release 16:

Smart Web Layout

By using Smart Web Layout, Analytics Studio now allows the user to easily create dashboard-style layouts directly in the browser. Users drag and drop data and visualizations to create reports. Visualizations can be moved anywhere in the layout and resized, while adhering to a grid. Users can specify borders, margins, and other properties using a property sheet. Visualizations include table, crosstab, text, image, and many types of charts.

Analytics Studio automatically controls the page size. If the report will be printed, users can specify standard page sizes, such as A4, US Legal, and US Letter, as well as custom sizes, so that converting the report to PDF or any other document format produces WYSIWYG output.



Number 1: Select the data

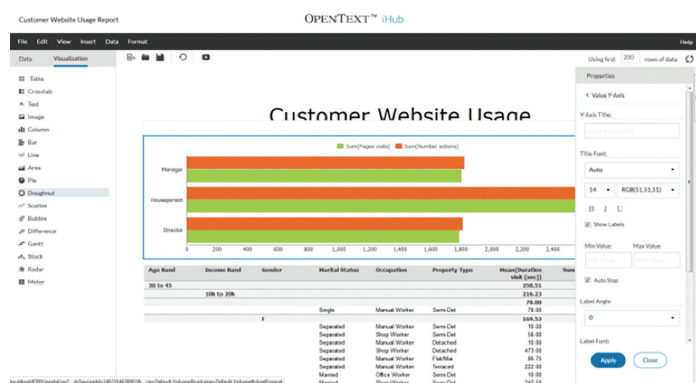
FIGURE 3:

Sample Report created in Analytics Studio: Select the data, choose the properties, and see the final layout.

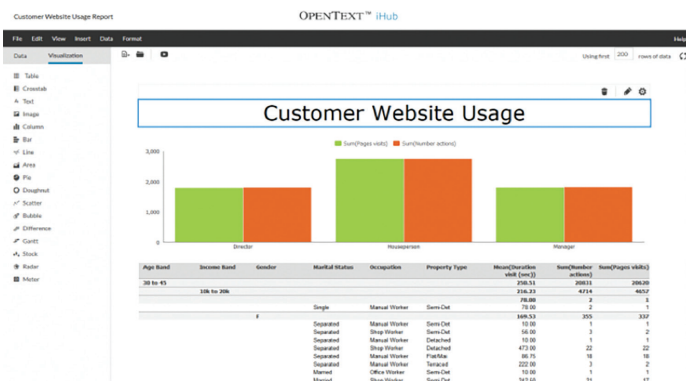
Number 1: Select the data

Number 2: Choose the properties

Number 3: See the final layout



Number 2: Choose the properties



Number 3: See the final layout

Hyperlinks

Dynamic hyperlinks can easily be added to a report in Analytics Studio. Hyperlink URLs can be static or generated using data elements from the report. Hyperlinks can also jump to a bookmark within the same report or drill through to another detail report.

The Hyperlink Builder dialog box is shown with the following fields and options:

- Hyperlink Type:** Radio buttons for No link, URL (selected), Bookmark in this report, and Drill-Through.
- Location:** Text input field containing "http://www.realweather.com/zip=" & [ZIP]".
- Target:** Dropdown menu set to "New browser window or tab".
- Tooltip:** Empty text input field.
- Buttons:** Cancel and OK buttons at the bottom right.

FIGURE 4:

Analytics Studio Hyperlink Builder

Data preview

To make sure it is the data they really want before they start processing it, users can preview the data in a data set, data model, or column and filter the data to meet the requirements of a particular report.

New Report

OPENTEXT™ iHub

File Edit View Insert Data For

Data Visualization

Data Objects/Call Center data

Data Model

Call Info

Call Date

Call ID

Call Minutes

Resolved OnTime

Service Type

Severity

Time to Answer

Customer Info

Geography

Product Info

Vendor Info

USA Regions

USA States

Vendor Call Data

Data Model - Preview

| CALL ID | C. | Resolved | OnTime | Call Minutes | Severity | Service Type | Time to Answer |
|---------|-----|----------|--------|--------------|----------|--------------|----------------|
| 1 | 1.. | Yes | 38 | Medium | Chat | 4 | |
| 975 | 6.. | Yes | 49 | Medium | Chat | 16 | |
| 633 | 1.. | Yes | 46 | Medium | Chat | 13 | |
| 697 | 1.. | Yes | 10 | Medium | Chat | 9 | |
| 1175 | 1.. | Yes | 60 | Medium | Chat | 20 | |
| 772 | 2.. | Yes | 12 | Medium | Chat | 18 | |
| 949 | 6.. | Yes | 34 | Medium | Chat | 15 | |
| 951 | 6.. | Yes | 27 | Medium | Chat | 12 | |
| 901 | 5.. | Yes | 46 | Medium | Chat | 3 | |
| 952 | 6.. | Yes | 13 | Medium | Chat | 6 | |
| 1329 | 9.. | Yes | 12 | Medium | Chat | 1 | |
| 1255 | 1.. | Yes | 1 | Medium | Chat | 2 | |
| 1384 | 3.. | Yes | 13 | Medium | Chat | 3 | |
| 2121 | 2.. | Yes | 2 | Medium | Chat | 6 | |
| 2019 | 1.. | Yes | 81 | Medium | Chat | 9 | |
| 1950 | 8.. | Yes | 1 | Medium | Chat | 6 | |
| 1793 | 9.. | Yes | 5 | Medium | Chat | 8 | |
| 2400 | 1.. | Yes | 32 | Medium | Chat | 6 | |
| 378 | 5.. | Yes | 33 | Medium | Chat | 13 | |
| 15 | 1.. | Yes | 32 | Medium | Chat | 17 | |
| 561 | 9.. | Yes | 13 | Medium | Chat | 8 | |
| 2 | 1.. | Yes | 16 | Medium | Chat | 6 | |
| 377 | 5.. | Yes | 44 | Medium | Chat | 15 | |
| 198 | 4.. | Yes | 15 | Medium | Chat | 5 | |
| 1046 | 8.. | Yes | 517 | Medium | Chat | 15 | |

Previous 25 Rows

Next 25 Rows

Close

Sep 14, 2014

1793

5.00 Yes

Chat

Medium

FIGURE 5:

Data Preview in Analytics Studio

Parameters

Analytics Studio continues to support filters that limit the data displayed in a report so that users can define a filter condition at report design time – for example, COUNTRY LIKE 'USA%', to display data only for the USA.

And now, instead of locking in a filter value via the query that provides data for a report, users who want to customize their reports on a self-service basis can do so via setting parameters – that is, specifying one or more values at report run time. The data that appears in the report depends on the parameter values specified when generating the report.

Another new feature allows a parameter created in one visualization to be easily linked to the filter in any other visualization – to any object. With one parameter, users can filter the data in all the visualizations in a report.

Also new: The ability to manage parameters so the user can more easily track or change the labels of a parameter and in which visualizations it shows up.

For example, if the user has just gotten a question about Eastern Europe, he or she can quickly set a parameter for this on-demand query, e.g. COUNTRY LIKE 'Hungary%', or with multiple values, e.g. COUNTRY IN (Hungary, Slovakia, Romania, Poland).

Aggregate measures

OpenText™ Analytics Studio now displays aggregate measures included in a data object. Aggregate measures perform a calculation such as a sum or average over a set of values – for example, total revenue or average rainfall. Aggregate measures can be used in tables, crosstabs, and chart visualizations.

Aggregate measures in a data object can be used in a summary table without further modification. Users can also create their own aggregate measures.

What's new in Analytics Designer

Analytics Designer is a powerful IDE (integrated development environment) based on the Eclipse™ Workbench platform that developers use to create fully featured reports, gadgets, dashboards, web applications, and iHub Data Objects.

Analytics Designer offers the following features:

- Direct access to multiple types of data sources
- Rule-based secure access to data
- Support for even the most complex analytic requirements
- Scripting for customization of any report component
- Libraries for sharing standard report components and style definitions
- Publishing reports, gadgets, dashboards, and web applications to Information Hub

New Analytics Designer features available with Release 16:

Data model enhancements

iHub Data Models continue to provide flexible, optimized access to multiple data sources and data sets, as they have since Version 3.0. In Release 16, we boost the linking power of iHub Data Models, including their support of outer joins and predefined measures.

For some background, an iHub Data Model consists of several data sets linked by joins. Each data set uses a simple query on a single table. When a report developer uses the data model to provide data to a report, the model joins the required tables and sends the optimized query to the data source. The developer controls the fields available to the report developer and sets security rules to further refine access to data by the end users of the report. The fields in the data sets are visible in Analytics Studio, Interactive Crosstabs, and in Dashboards when the data model is used as a data source.

Outer join in data model

The Analytics Suite 16 offers improved techniques of data merging, such as faster outer joins. When linking multiple data sets, Data Models now directly support the Left Outer Join, the Right Outer Join, and the Full Outer Join. For example, the data model shown below contains Customers, Orders, and Order Details data sets. The Customers and Orders data sets are joined on the CUSTOMERNUMBER column, and the Orders and Order Details data sets are joined on the ORDERNUMBER column. The developer has set the join type between Customers and Orders to a Left Outer Join.

The generated query using both of these tables returns all customers even if they have no orders. The join type between the Orders and Order Details tables is an inner join. A generated query using these two tables does not return orders that have no details.

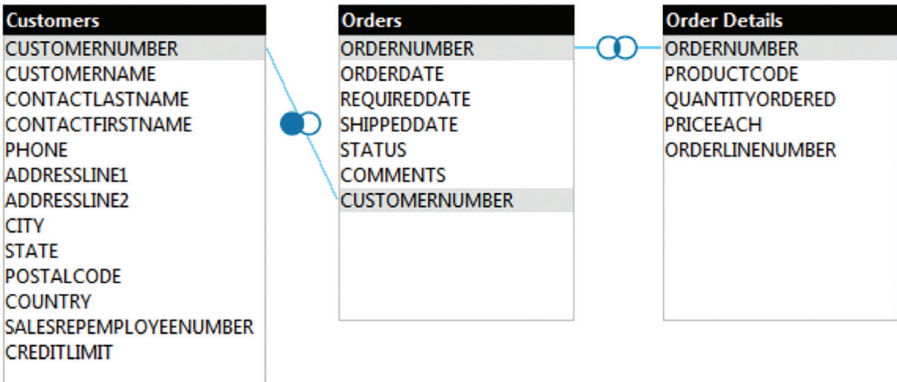


FIGURE 6:

Data Model in Analytics Designer showing join conditions

Analytics Designer provides additional functionality to the report developer using the data model to change the type of join used when the report runs. In this example, if the report should not show customers who do not have orders, the developer can change the join type between the two tables to an inner join.

Predefined measures in data models

As a more convenient way to provide aggregated data for ad-hoc reporting, complex measures can now be created in iHub, predefined within the Data Model, and then made available to Analytics Designer and Analytics Studio.

A predefined measure in an iHub Data Model uses an aggregation function to create a predefined summary of an expression. For example, a measure named “Sales Total” is the expression “Price * Quantity” and the aggregation function SUM. Predefining “Sales Total” in a data model makes it available to the users of Analytics Designer, Dashboards, and Analytics Studio without each needing to recreate or even understand the complexity of the measure.

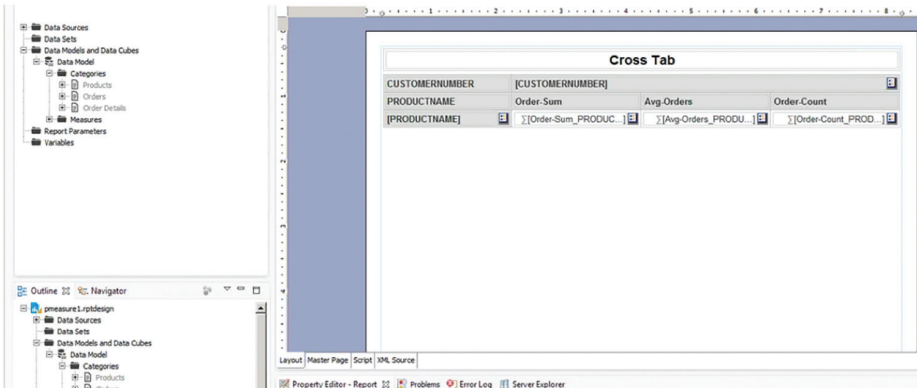


FIGURE 7:

Predefined measures in Analytics Designer

Using predefined measures is a convenient way to provide aggregated data for charts and crosstabs. Just drag the measure from the data model and drag it into the Y-axis of a chart or the summary area of a crosstab. No setting of aggregation functions is required. The measure is also available to create summary values for groups and grand totals in a crosstab.

REST API data access

Analytics Designer 16 provides a new REST Open Data Access (ODA) driver. This lets the developer authenticate and connect to JSON structured data through REST directly in the design tool. The developer can then specify the URIs and methods to access the API and the authentication information returned by the API.

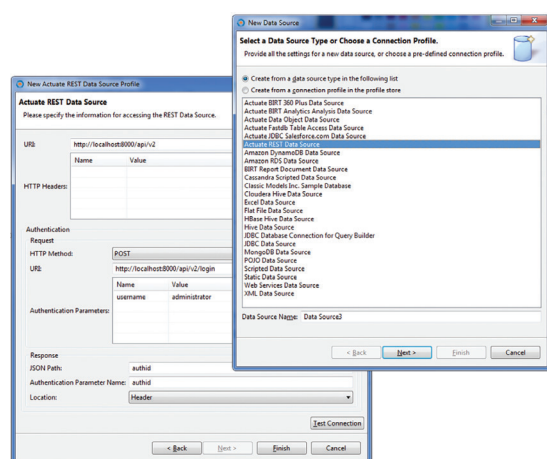


FIGURE 8:

*Analytics Designer REST ODA
Data Source*

MongoDB and Spark JDBC access

MongoDB is an open source NoSQL database that uses its own query syntax to access data. Apache Spark is an open source cluster computing framework commonly used for big data file systems; it is centered on a read-only multiset of data items distributed over a cluster of machines that is maintained in a fault-tolerant way. Analytics Designer 16 includes drivers that provide direct relational JDBC access to both the MongoDB data structure and the Spark SQL data.

Secure JDBC access using SSL

Analytics Designer 16 supports encrypted Secure Sockets Layer (SSL) access to any supported JDBC database. The default access does not use encryption. To use encryption, provide the standard SSL parameters to the data source.

New fiscal year functions

Many companies use a fiscal year that does not align to calendar year boundaries. Instead of using complex expressions to calculate the values of fiscal quarters, months, weeks, and so on, Analytics Designer 16 provides a full set of fiscal year functions. Based on the day and month on which the fiscal year begins, a call to a single function can provide the number of the quarter, month, week, or day of a date in the fiscal year, or the start date of a fiscal year, quarter, month, or week.

Improved cloud readiness for iHub

iHub Release 16 includes underlying mechanisms, including support for SSL (Secure Socket Layer), for operating in the cloud, as part of any cloud-enabled configuration into which a customer may deploy. For example, users can upload any desired files, report designs, gadgets, dashboards, or applications from outside the firewall into a cloud application based on iHub.

You can access the cloud deployment using secure messaging transfer or SSL.

iHub cloud deployment with high availability support

iHub 16 introduces a set of virtual appliances that accelerates deployments in the cloud. The following virtual appliances are pre-installed and pre-configured iHub components:

- iHub PostgreSQL Hi Availability Appliance
 - Contains an installed PostgreSQL database and a PGPool II instance.
 - A pair of iHub PostgreSQL appliances, running as master and slave, provides high availability.
 - Built-in PGPool II instance provides automatic failover. Database clients use a single virtual IP address to connect to the database. Failover to the slave appliance from the master appliance is transparent to a database client.
- iHub Server Appliance
 - Contains an installed iHub instance.
 - Running two or more iHub server appliances provides high availability.
 - A deployed iHub server appliance is ready for use as a node in an iHub cluster.
- iHub System Console Appliance
 - Contains an installed System Console instance.
 - Hosts one or more clusters consisting of individual iHub appliances.

The appliances are Linux®-based virtual machines and are designed for fast deployment. Developers run a single script to deploy an appliance. Deployment scripts support externalized parameters for automatic provisioning. For example, the volume storage location can be passed to the iHub server deployment script to connect the iHub appliance to the volume storage location. When the deployment script finishes, the appliance is ready to use.

Broader reach for secure data access

Hub 16 has added several new features for secure data sharing. It offers secure HTTPS integration with SSL (Secure Socket Layer) to customers' external authentication servers. the enhanced REST API, with its secure open data access capability, provides more peace of mind when accessing cloud-based applications such as Salesforce and NetSuite. iHub 16 supports specifying either HTTP or HTTPS for communication between iHub and an external server when using RSSE.

New Features in Big Data Analytics 16

User experience enhancements

Process enhancements were introduced to Big Data Analytics to reduce the learning curve of the application and provide a better experience during the data preparation process.

The major enhancements are related to the way Big Data Analytics manipulates the loaded data in the columnar database engine: more flexible access to discrete values and more tips to help in the loading process. Changing right-clicks to drop-down menus (making the application more tablet-friendly and cleaner) and providing smart charts when exploring or charting improves the user experience.

Data tree enhancements

A drop-down menu now replaces the tabs in the data tree space with three options:

- My Data
- Discrete Values
- My Folder

When browsing the data tree, discrete values are also accessible behind the columns in the tables. It is possible to navigate through those values, sort ascending or descending by percentage of appearance or by value (numeric or alphanumeric sorting), and search for particular values.

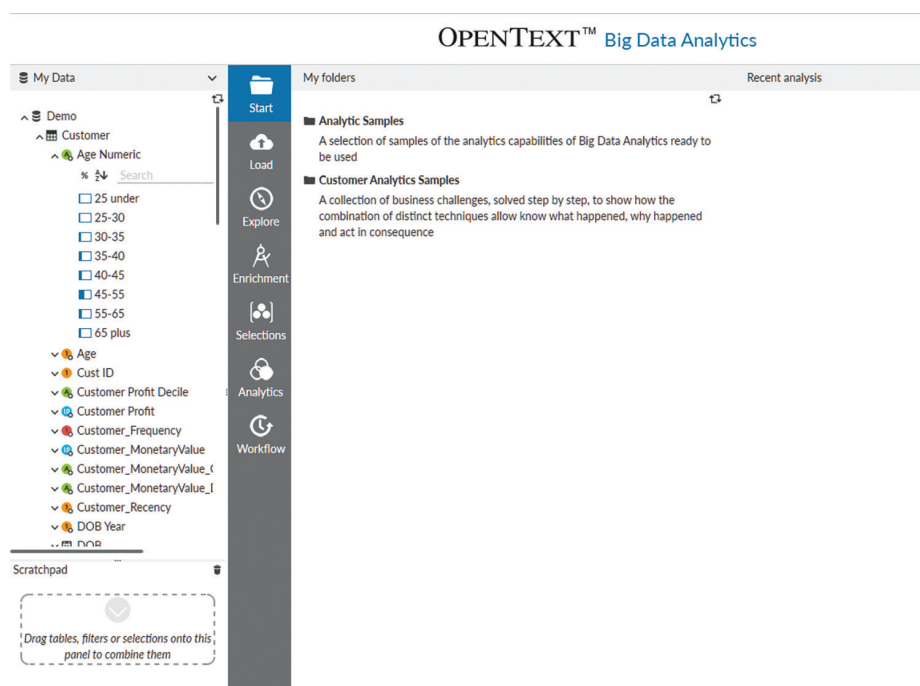


FIGURE 9:

Big Data Analytics Data Tree View

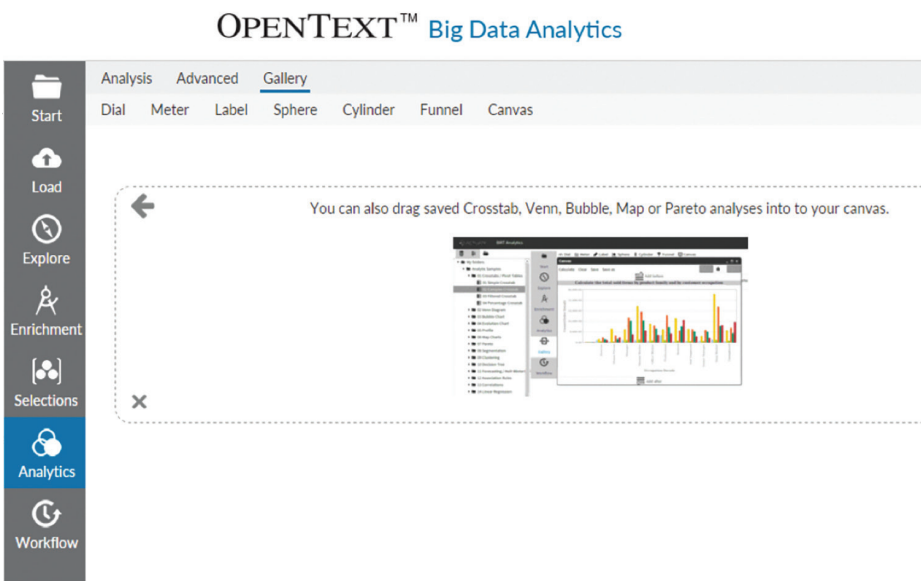


FIGURE 10:

New tab locations in Big Data Analytics

Useful URLs in the help menu

The useful URLs that were in the Start page are now in the Help menu.

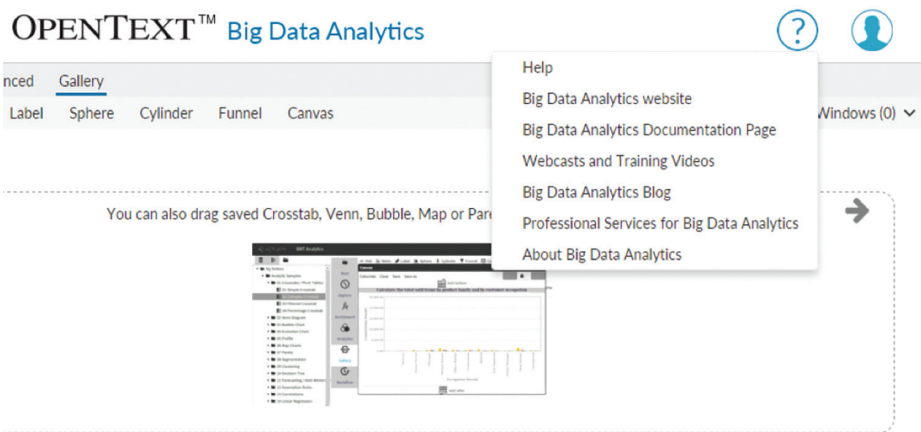


FIGURE 11:

Big Data Analytics useful URLs menu

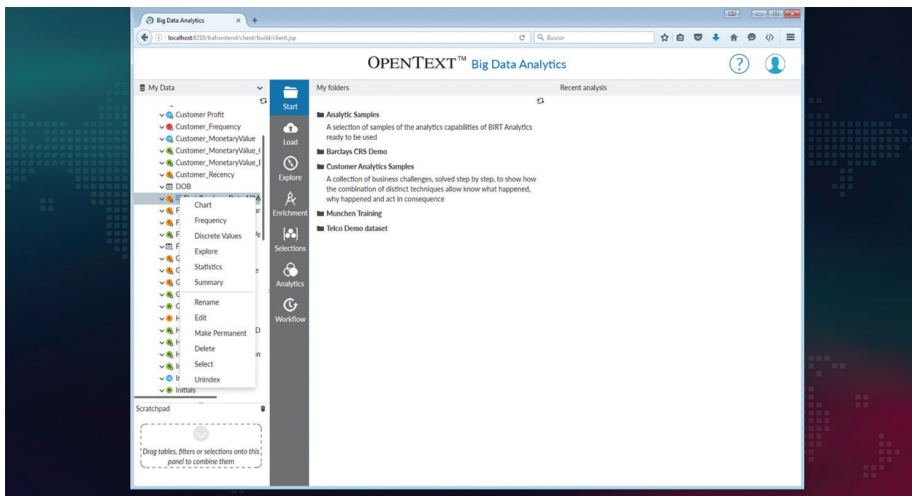


FIGURE 12:

Big Data Analytics drop-down menus

Clearer columns and bar diagrams in Microsoft® Internet Explorer and crosstabs charts

Charts with columns or bars with a unique measure are displayed with a single color in Explorer or crosstabs visualizations.

Loading projects enhancements

The previous release allowed business users to load their own data in the front end; in this new release, Big Data Analytics adds more enhancements to that self-service load module.

More help panels and tooltips in the load module

The whole process of loading data from the front end has more guidance with help panels.

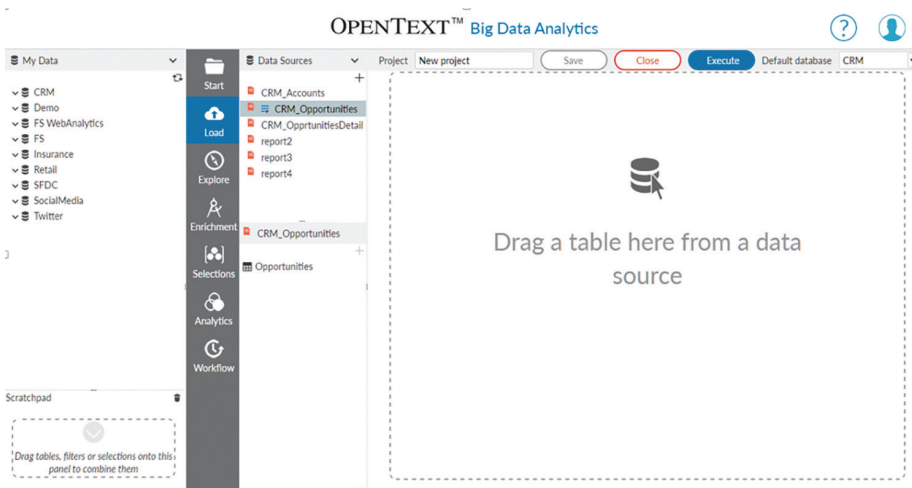


FIGURE 13:

Loading data in Big Data Analytics

Save loading projects

First, the user can save the loading project and recover it whenever it needs to be run or edited. This functionality is available under the option Projects in the drop-down menu in the loading menu.

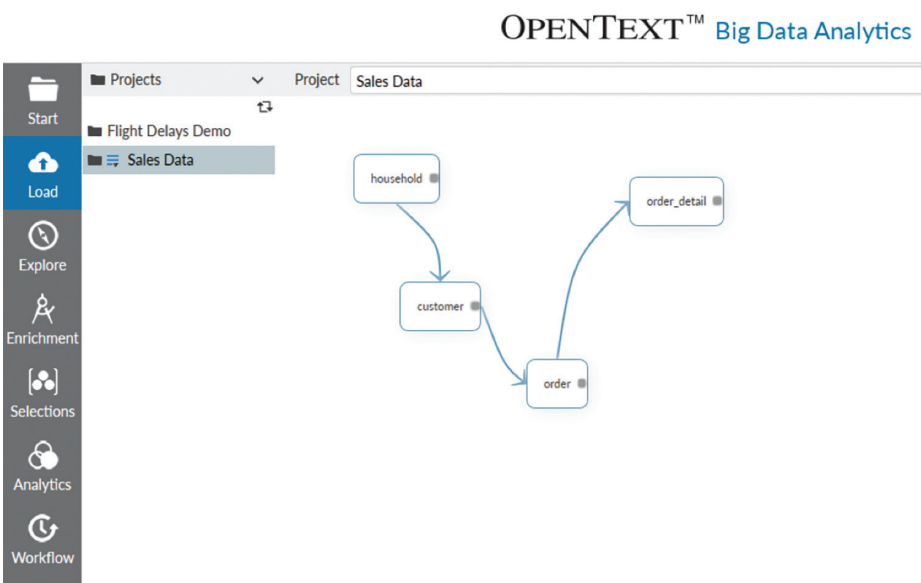


FIGURE 14:

Saving a loading project in Big Data Analytics

Schedule loading projects and manage related events

Additionally, this release has added new tasks and events related to loading projects in the Frontend Task Manager, in order to schedule load processes (manage Tasks) and make actions after loading processes (manage Events).

OPENTEXT™ Big Data Analytics

Scheduled task detail

Save

Scheduled task **Actions**

Name ☐ Starting date

Description ☐ Ending date

☒ Active

Trigger for task

- ▼ Scheduled task on time
- ^ Scheduled task on event
 - ▼ Big Data Analytics
 - Engineering
 - Definition modified
 - Repository item deleted
 - Loading project
 - Repository item renamed
 - ▼ Data Mining
 - ▼ Campaign workflow

Drag and drop

FIGURE 15:

Scheduled Tasks in Big Data Analytics

REST API v2

The REST API shipping with Big Data Analytics 16 has been enhanced to include a complex filter constructor and function to fetch database information and metadata.

OPENTEXT™ Big Data Analytics REST API

Username : Password :

This REST API can be used to create various OpenText BDA analysis. This also provide access to pre built analysis from Big Data Analytics. This documentation provide web application and mobile app developers to construct BDA analysis to embedd to your application. Sample examples will be provided on request.

Login : Sign in credentials to Big Data Analytics Show/Hide | List Operations | Expand Operations | Raw

/user/login Login user to Big Data Analytics

Folders : List of saved analysis Show/Hide | List Operations | Expand Operations | Raw

/folders/allfolders Returns all folders from MyFolder directory

/folders/id Returns a list of analysis from folders

Execute Analysis : Get a analysis by id Show/Hide | List Operations | Expand Operations | Raw

/Analysis/id Returns analysis data

Databases : Information and component of databases Show/Hide | List Operations | Expand Operations | Raw

/database/names Returns all databases

/database/tables Returns a list of tables

/database/table/columns Returns list of columns

/database/table/rows Returns rows of a table

FIGURE 16:

*Big Data Analytics REST API
interactive documentation*

Fault tolerance in append processes

This enhancement in the built-in columnar database provides the complete recovery of a database-original repository in case of error during an append process, improving fault tolerance.

Supported Products

OpenText Analytics Release 16 includes support for the latest browsers, operating systems, and databases. See the [Supported Products](#) document for more information.