PUBLIC

SAP BusinessObjects Business Intelligence Suite
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What's New

Content

1 About this document

The *What's New Guide for SAP BusinessObjects Business Intelligence Suite 4.2* provides an overview of the features and enhancements that have been added to the SAP BusinessObjects Business Intelligence Suite since the previous release. It directs you to the available product documentation to get you started using the new features.

2 SAP BusinessObjects Business Intelligence Suite 4.2

2.1 Welcome to SAP BusinessObjects Business Intelligence platform 4.2

SAP BusinessObjects Business Intelligence suite is a comprehensive set of tools for transforming your data into useful information and delivering it to the people who need it most. The suite includes tools for:

- reporting off of data
- scheduling and delivering documents
- analyzing and exploring data
- viewing and visualizing information
- managing all of these tasks
- customizing your own unique solutions

For a list of supported platforms, databases, web application servers, web servers, and other systems supported by this release, see the Product Availability Matrix.

To learn about features of previous releases, visit the SAP Help portal at http://help.sap.com/bobi.

2.2 SAP BusinessObjects Business Intelligence Platform

Performance improvement for SAP BusinessObjects Business Intelligence platform 4.2 installer

When you execute the Business Intelligence platform 4.2 setup.exe, the duration for the "Select setup language" screen is optimized when compared to 4.1 Support Package 6 and 4.1 Support Package 5.

SAP AutoConfigure Tool is added in collaterals

SAP AutoConfigure Tool is packaged as a part of SAP BusinessObjects Business Intelligence 4.2 collaterals.

SAP Host Agent Tool file is added in collaterals

SAP Host Agent Tool is packaged as a part of SAP BusinessObjects Business Intelligence 4.2 collaterals.

Tomcat 8 bundled web application server

Tomcat 8.0 is now the default, bundled web application server.

If you are using the update installation program to update a 4.0 or 4.1 installation that uses the bundled Tomcat 6.0 or 7.0 web application server respectively to version 4.2, your system is automatically updated to Tomcat 8.0.

Enhancements in finish screen of BI 4.2 installer

The installation or uninstallation finish screen of BI 4.2 is enhanced to display the message in the following scenarios:

- If warnings are generated during the installation or uninstallation: BI 4.2 has been successfully installed or uninstalled with warnings
- If errors are generated during the installation or uninstallation: Business Intelligence platform 4.2 encountered errors during the install or uninstall process

Enhancements in finish screen of BI 4.2 installer is exclusively for Windows platform

ErrorsAndWarnings.log file contains installation, uninstallation, modifying, or repairing log summary

ErrorsAndWarnings.log file contains exclusively the errors and warnings that occurred during installation, uninstallation, modifying, or repairing of SAP BusinessObjects Business Intelligence 4.2 installer.

A hyperlink appears in case of warnings or errors during the installation or uninstallation. To view the summary log, select the hyperlink.

The hyperlink for ErrorsAndWarnings.log file is exclusively for Windows platform.

Modifying the BI platform base version to add a new language

You can now add a new language by modifying your BI platform installation. When you update the Business intelligence platform from base version to BI 4.2, new languages that are added in BI 4.2 are not displayed in the base version. If you want to add a new language, then modify your base version.

Phase-wise installation of BI 4.2 installer

You can now perform the installation of BI platform 4.2 in two phases - Caching and Installation after caching. During caching the system downtime is eliminated, which reduces the overall system downtime.

Phase-wise installation is exclusively for Windows platform.

FIPS is now default in new installation of BI platform 4.2

If you perform new installation SAP BusinessObjects Business Intelligence platform 4.2 on your machine, then by default Federal Information Processing Standards is enabled.

Enhancements to Upgrade Management Tool (UMT)

- Select filter page is a new page included in this release. The main purpose of select filter page is to reduce the number of document being displayed. It allows you to filter the documents based on the following:
  - The created/ modified time
  - The object type
  - The previously migrated content
- On the summary page, system displays the minimum temporary space required by UMT for document migration.
- On the object selection page, when you select the *Importing Pending/recurrence Instances* option, you can choose to migrate only the pending/recurrence instances and ignore the older instances.
- On the welcome page, you can find the following two enhancements:
  - You can change the temporary location required by UMT.
  - You can select the log level.
- On the log on page there is an option to *Save credentials for future usage*. By checking this option system saves the CMS user name and BIAR location. Henceforth, when you log on to UMT, by default the CMS username and BIAR location are populated with the saved information.
- On the upgrade options page, if you choose the *Include security* check box, then you can migrate security rights from the source deployment to the destination deployment.

Enhancements to Translation Management Tool (TMT)

In this release, we have introduced Translation Manager SDK. This enables you to build your own application, which helps you to reintegrate modifications without reentering the same in Translation Management Tool.

Using this, you can create your own application to perform translations from the infoObjects or local folder. You can also use this SDK to export and import the translations to Central Management System (CMS), xliff and excel. In addition, we are also providing TMT Javadoc, which explains you the APIs used in the SDK.

Notification Alert in the CMC and the BI launch pad

Notification capability enables an Administrator to send alert messages from the CMC to the User. Using this feature, administrators can notify selected users about critical messages and other related information (for example, system downtime). The alert message appears as a notification popup in the BI launch pad screen when the user logs on.

BI Commentary

BI Commentary is an application that has been introduced in the CMC. It allows document users to collaborate by commenting on any of the data/statistics available in a given document. With BI Commentary, users can post comments on data/statistics within the reports. By default, BI Commentary creates and maintains its tables in the Audit database. However, SAP recommends that you configure a new database to store the comments from BI Commentary application.

BI Commentary is currently available for Web Intelligence application. Users working with Web Intelligence reports can now use BI Commentary for collaboration.

Recycle Bin as a CMC application

Recycle Bin is a new application in the CMC. When the user deletes an item from the BOE system, it is moved to the Recycle Bin, where it is temporarily stored until the Recycle Bin is emptied. This gives the user the opportunity to recover accidentally deleted reports/folders and restore them to their original locations.

With the Recycle Bin application, the administrator can:

- Initiate restoration of any deleted item (such as reports and folders)
- Permanently delete items from the Recycle Bin
- Perform auto-cleanup of the Recycle Bin

Only items in the public folder can be temporarily stored in the Recycle Bin.

Selective retrieval of objects from an LCMBIAR file

You can now selectively retrieve objects from an LCMBIAR file. This requires that the user has the introduction of 'Edit LCMBIAR' right. When you selectively retrieve objects from an LCMBIAR file, a new job with the selected objects is created. The same operation can be performed using the Command Line tool.

BI Administrator's Cockpit

BI Administrator's Cockpit is a new application added in the CMC. It enables an administrator to collect basic data about the BI environment. It essentially means deriving business intelligence from within the data in your business

intelligence environment. With BI Administrator's Cockpit, you can obtain information about Servers, Scheduled Jobs, Content Usage, and Applications.

Enhancement to Web Services Consumer SDK for Auditing

Web Service clients like AnalysisOffice, Xcelsius etc that uses Web Services consumer SDK can now be audited. You can enable client auditing by providing specific client ID using Web Services Consumer SDK (.NET and Java).

2.3 SAP BusinessObjects Web Intelligence

Optional creation of shared object

The copy/paste operation has been tweaked to give you the possibility to choose how you want to reuse report elements. When copied into JAVA clients, report elements are saved in several formats so they can be pasted later on in different applications. Shared objects give you the possibility to reuse report elements in a different Web Intelligence document but take a long time to be copied to the clipboard. To increase Web Intelligence performance, the share objects creation is now optional.

Right-to-Left alignment support

You can now set a preference parameter that overrides the document settings to define the orientation of Web Intelligence documents by default. A document created with a left-to-right alignment for instance can now be viewed with a right-to-left alignment, depending on how you have set the parameter.

BI Commentary

You can now add comments in Web Intelligence reports and manage them. With the new integrated comments solution, commenting has been made simpler thanks to contextual panels to improve the overall user experience. You can define your commenting preferences in Web Intelligence document's properties.

Parallel Data Provider Refresh

Parallel Data Provider Refresh increases data refresh performance for Web Intelligence reports containing multiple data providers, and enables you to perform several data refresh actions simultaneously in Web Intelligence reports based on multiple data providers with no performance drop.

Geomap charts

Geomaps are a new type of visualizations that represent data geographically, rendered via the Web Intelligence graphical engine, and let you match specific parts of your dataset with precise locations around the world via a geographical database embedded in Web Intelligence. Via the graphic engine integrated into Web Intelligence, you can look for specific locations that you can link to the values of selected dimension objects and visualize your data on a map.

Custom Elements

Custom Elements are a new type of visualizations whose rendering is delegated to external rendering services by Web Intelligence. In Web Intelligence documents, Custom Elements are integrated and displayed similarly to any other report element (chart, table, etc.).

Direct Access to HANA views

Get access to HANA views via HANA Direct Access data providers and create Web Intelligence documents without authoring universes. HANA Direct Access relies on a transient universe and speeds up the reporting process as a whole. Create queries on HANA views and benefit from the speed and power of HANA.

SAP HANA Online mode

With SAP HANA Online mode, create Web Intelligence documents with live data leveraging the power of HANA. In SAP HANA Online mode, all Web Intelligence calculations such as value aggregation and member filtering are delegated to HANA. This enables quicker interactions between Web Intelligence and HANA, providing better performance for data refresh.

This feature mainly targets business analysts who need to analyze and explore huge quantities of data on HANA. They can now work with real-time data and enjoy better interactions with Web Intelligence.

Report designers will also benefit from SAP HANA Online mode user experience that makes documents creation easier than before. Report designers can now bypass query panels and universes.

Shared Elements

Shared elements are reports parts that are stored in the CMS repository, and can be reused multiple times by other users or for other documents. With shared elements, create content once, and reuse it multiple times to reduce the total cost of ownership.

New SQL functions: UPPER_LIKE and CONTAINS

Replace the LIKE operator used by default in Web Intelligence with these functions to allow case insensitivity when you do an SQL search. UPPER_LIKE is supported by most databases, while CONTAINS is a HANA based function and is supported by the HANA database only. Refer to the *Information Design Tool User Guide* to know more about the function and how to enable them in Web Intelligence.

2.4 SAP BusinessObjects Web Intelligence and BI Semantic Layer SDKs

SAP BusinessObjects BI Semantic Layer

- **RESTful Web Service SDK**
  - You can retrieve a parameter details through its identifier.
- **Java SDK**
  - You can retrieve linked data foundation and linked business layer details.
  - You can create and edit predefined and custom display formats for numeric and date-time business objects.
  - You can retrieve and edit the source information of business objects (technical information, mapping, and lineage).
  - You can identify data foundation joins through their identifiers.
  - You can retrieve the version number of the BI Semantic Layer Java SDK.

SAP BusinessObjects Web Intelligence

- **Customization**
  You can hide the Comment and Shared Element features from the SAP BusinessObjects Web Intelligence user interface through customization in the CMC.
- **RESTful Web Service SDK now lets you:**
  - Retrieve a parameter details through its identifier
  - Replace a Microsoft Excel file used as data provider with another one
  - Update a Microsoft Excel file on the CMS repository

- Get and set if a measure must return values with a higher precision
- Support dotted and dashed lines in Line charts

2.5 SAP BusinessObjects Business Analysis, edition for OLAP

Alias table support for Oracle Essbase data source

Alias is an alternate name that can be used for dimension and measures in OLAP workspace.

In the OLAP analysis workspace when the information is displayed, the workspace uses default table information for dimension and measure from the Oracle Essbase data source. However, you can change the default table to any other alias from the alias table. When you want to see the selected alias as default in the workspace, for the future use, save the OLAP analysis workspace

Alias table is supported by Oracle Essbase data source. The Aliases are defined and created by the system administrator of Oracle Essbase data source and stored in the database outline.

Break hierarchy support within sort

When you analyze OLAP data, if you want the ascending or descending sorting arrangement not to be restricted within the parent members in the hierarchy then use Break hierarchy to arrange your data in the cross tab.

When you perform Break hierarchy, you can see that the dimensions and measures are sorted across the parents in the hierarchy enabling you to analyze the entire data with only ascending or descending sort.

Currency translation support by SAP NetWearver Business Warehouse(BW)

Currency translation allows you to convert the currency for Key Figures in the analysis workspace. In your analysis workspace the key figures defined in a currency can be converted into another currency. The target currency you want to convert is created in the BW data source.

Currency Translation is supported by SAP NetWeaver Business Warehouse (BW) data source.

SAP HANA data source via HTTP connection

If you use the SAP HANA appliance software, you can analyze SAP HANA data sources with Analysis via HTTP connection. The connection to the SAP HANA platform relies on the http(s) protocol for the communication with

the SAP HANA server. You can connect to the SAP HANA platform with HTTP connection via SAP BusinessObjects Business Intelligence platform. This connection can be created directly in the CMC of the SAP BusinessObjects BI platform.

2.6 The Information Design Tool

With this release, information design tool provides two key enhancements:

- Linked universes – a way of linking a universe to one or more core universes and re-use components from those universes' data foundations and business layers.
- SAP Business Explorer (BEx) authored universes – a way of building and saving universes on BEx queries, using the BICS connector.

Linked Universes

A linked universe is a universe (.UNX) that contains a link to a core universe in the Business Intelligence platform CMS.

- A linked universe inherits the data foundation and business layer from one or more core universes as read-only resources, and can therefore re-use components on those data foundations and business layers.
- A core universe acts as a reusable and dynamic library of data foundation and business layer components for universes that link to it. When changes are made in the core universe, they are automatically propagated to the shared components in its linked universes.

Using linked universes allows you to take advantage of components in predefined and tested universes as a starting point to quickly build new universes. This enables you to centralize often-used components in a single, core universe and leverage them in multiple, linked universes. It also gives you the possibility of assigning the task of core universe development to database administrators, who can focus on setting up core universes, and the task of designing the more functional business layers to report designers, who can focus on the business requirements of their specific field.

BEx authored universes

You can now create universes on top of BEx queries with information design tool. When you select a BEx query, information design tool generates a business layer automatically. You can then rename objects, regroup objects in meaningful folders, or delete unnecessary objects.

> **Note**
>
> A BEx authored universe only work as single-source universe.

> **Note**
>
> When the underlying BEx query changes, you need to refresh the BEx authored universe.

2.7 Data Access

Feature Support (New):

- X509 one-way Certificate Based Authentication
- Unix ODBC2.3.0 support
- Updated network layer for each database support

Data Source Support (New):

- HANA SPS10
- Hadoop Hive 0.14
- Cloudera Impala - CDH 5.2 (0.13 and 0.14)
- Amazon EMR Hive 0.13
- Apache Spark (JDBC and ODBC)
- Greenplum 4.3
- IBM IDS 12.1 (ECS France)
- IBM Netezza 7.2 (support 7.1 by reference)
- HANA PowerPC

For more information on the database support, see Product Availability Matrix (PAM).

2.8 Business Intelligence Platform RESTful Web Services

The following are the new APIs supported in this release:

- **Publication:** List, create, modify and delete publications
- **User Management:** Create, modify and delete user
- **User Group Management:** Create, modify and delete users
- **Uploading and Downloading Files:** Uploads and downloads files
- **Scheduling:** Retrieves scheduled instances
- **CMS Query :** Retreives infostore objects based on SQL query
- **BI Administrator's Cockpit:** Provides statistics of Server, Jobs, Content usage and Application usage

2.9 SAP Crystal Reports RESTful Web Services

A new REST API to retrive report metadata is supported in this release.

Using this API, you can retrive the following report's or subreport's `metadata/structure` from a crystal report:

- Database connection, tables, aliases, joins, fields used in the document and all its associated properties. It lists fields from CrossTabs as well.
- Parameters of the report
- Formula fields of the report
- Parameter fields of the report
- Filters and all expressions, calculations involved in the report

2.10 Dashboards and Presentation Design

Installation support for 64 bit Microsoft Excel

Formerly, Dashboards and Presentation Design could only be installed on a system with 32 bit Microsoft Excel. With BI 4.2, you can also install Dashboards and Presentation Design on a system with 64 bit Microsoft Excel.

Filter component display update

Originally, the Filter component would only display horizontally. In BI 4.2, the Filter component can now be displayed both vertically and horizontally.

Selector/Chart minor enhancement

The following selector/chart minor enhancements are now available:

- new binding button for SpreadSheet Table and ScoreCard
- new binding button for Chart

These options allow users to specify default selected item via data binding.

2.11 SAP Crystal Reports (Designer)

Support for vertical alignment of text within a cell

The "Format Editor" dialogue box and the formatting tool-bar provide you with vertical alignment icons for *Top*, *Center* and *Bottom*.

Support for new functions

New range based functions (`GetLowerBound(x); GetUpperBound(x)`) and a miscellaneous function (`GetValueDescriptions(x)`) are introduced. See the *Crystal Reports Online Help* for more information.

2.12 SAP Crystal Reports for Enterprise

Support for vertical alignment of text within a cell

The "Format Editor" dialogue box and the formatting tool-bar provide you with vertical alignment icons for *Top*, *Center* and *Bottom*.

Bar Code and QR Code support

Any numeric or text field that is added to a report can be converted to a bar code. Date or currency fields also can be converted to specific bar code formats including 1D and 2D bar-code formats. Bar codes are also available as functions. See the *SAP Crystal Reports for Enterprise User Guide* for more details.

Support for Waterfall charts

You can now create waterfall charts in your crystal reports. A waterfall chart is a form of data visualization that helps in understanding the transition in the quantitative value of an entity which is subjected to increment or decrement. See the *SAP Crystal Reports for Enterprise User Guide* for more details.

Disabling Report Validation in Crystal Reports

When a Crystal Reports document/report with a large number of sub-reports (based on BW connections) are saved without data and are opened in a DHTML Viewer, it opens one back-end connection in the BW server for

each report/sub-report. When multiple users open the same report, many connections are opened causing the system to crash.

Now, a new report option (*Disable Report Validation in Viewer*) is introduced to overcome this issue in Crystal Reports for Enterprise. See the *SAP Crystal Reports for Enterprise User Guide* for more details.

2.13 SAP BusinessObjects Mobile Server

Push Notifications to iOS Devices

The SAP BusinessObjects Mobile server pushes notifications to iOS devices of the SAP BusinessObjects Mobile application users. Notifications occur in the following scenarios:

- When the BI documents downloaded on user's device have an update or a new instance available on the server.
- When a new document is received in user's BI Inbox.
- When the BI platform/BOE administrator broadcasts a message.

Notifications are automatically pushed to the device from the Mobile server through the APNS (Apple Push Notification Service). Users do not need to explicitly refresh the application home screen to fetch updates via an active connection. The "notification settings" should however be enabled in the application. For more information, refer to the *Mobile Server Deployment and Configuration Guide* for Mobile Server 4.2.

> **Note**
>
> This feature is implemented only on the Mobile Server. You can use this feature only once the SAP BusinessObjects Mobile 6.3(Mobile Client) is released.

3 SAP BusinessObjects Business Intelligence Suite 4.2 SP3

3.1 Welcome to SAP BusinessObjects Business Intelligence platform 4.2 SP3

SAP BusinessObjects Business Intelligence suite is a comprehensive set of tools for transforming your data into useful information and delivering it to the people who need it most. The suite includes tools for:

- reporting off of data
- scheduling and delivering documents
- analyzing and exploring data
- viewing and visualizing information
- managing all of these tasks
- customizing your own unique solutions

For a list of supported platforms, databases, web application servers, web servers, and other systems supported by this release, see the Product Availability Matrix.

To learn about features of previous releases, visit the SAP Help portal at http://help.sap.com/bobi.

3.2 SAP BusinessObjects Business Intelligence Platform

Phase-wise update installation - GUI mode

You can now perform the update installation of BI 4.2 through Graphical User Interface (GUI) mode.

Phase-wise installation is performed in two phases - Caching and Installation after Caching. During caching phase, you can continue working on the system and hence, there is no system downtime.

Phase-wise update installation is available for both Windows and Unix operating systems

For more information, see the Business Intelligence Platform Installation Guide for Windows, Business Intelligence Platform Installation Guide for Unix and Support Package Update Guide.

For more information, watch https://youtu.be/NoVfgAUXPwY .

Phase-wise update installation - CLI mode

You can now perform the update installation of BI 4.2 through Command Line Interface (CLI) mode.

Phase-wise installation is performed in two phases - Caching and Installation after Caching. During caching phase, you can continue working on the system and hence, there is no system downtime.

In BI 4.2 SP3, Phase-wise update installation is introduced for Unix operating systems. This makes the Phase-wise installation available for both Windows and Unix operating systems.

For more information, see the Business Intelligence Platform Installation Guide for Windows, Business Intelligence Platform Installation Guide for Unix and the Support Package Update Guide.

Deploying Web Application Contents - now or later option

In BI 4.2, new *Web Application Deployment* window has been introduced.

If bundled default Tomcat JAVA Web Application Server is present in the base installation, installer prompts the *Web Application Deployment* window. Else, the installer does not prompt *Web Application Deployment* window.

The *Web Application Deployment* window displays two radio button options - *Deploy web applications now* and *Deploy web applications later*.

Web Application Deployment window has been exclusively introduced for Business Intelligence Platform and SAP BusinessObjects Explorer add-on product. For more information, watch https://youtu.be/9qRmBWekQGM

SAP HANA Database using ODBC as CMS and Audit Database

SAP HANA Database is supported as CMS and Audit Database from BI 4.2 SP3.

In the *Select Exisiting Auditing Database Type* and *Select Exisiting CMS Database Type* you can now choose SAP SAP HANA Database using ODBC as Auditing and CMS database respectively.

For more information, watch https://youtu.be/mg0knTPb1Bk

BI on Users and Sessions available in BI Administrators' Cockpit

You can now obtain details about Users and Sessions in your BI environment. With the introduction of Users and Sessions in BI Administrators' Cockpit, you can get the number of active users, number of active sessions, and filter related details. For more information, watch https://youtu.be/dyyjxgM6tyo

Exporting data in BI Administrators' Cockpit

BI Administrators' Cockpit users now have the option to export data from within the application in CSV format.

Server Group Exclusivity

You can now create exclusive server groups. Exclusive server groups contain servers or server groups that are not part of any other server group or common server pool.

You can also modify an existing non-exclusive server group to make it exclusive. For more information, watch https://youtu.be/BCfCvp90jCA

Mapping user group to server group

You can now map a user group to a particular server group with the introduction of *Default Settings* option. You can choose to map an exclusive server group to a user group by selecting any of the two radio buttons: *Give preference to servers in the selected group* or *Only use servers in the selected group*. For more information, watch https://youtu.be/HpYK5LIPhTg

Recycle Bin application in the BI Launch Pad

Recycle Bin application is now introduced in the BI Launch Pad. When the user deletes an item from the BOE system, it is moved to the Recycle Bin, where it is temporarily stored until the Recycle Bin is emptied. This gives the user the opportunity to recover accidentally deleted reports/folders and restore them to their original locations.

New rights in BI Commentary

New *Hide Comments* right is now introduced in BI commentary. This right allows users to hide comments on a document using BI Commentary. *Bulk Add Comments* right is also introduced in BI Commentary that allows users to copy or promote multiple comments on a document from source to destination system..

BI Commentary service now supported in Promotion Management Tool

You can now copy or promote multiple comments from source to destination system. When you promote a document with comments, the comments are also migrated from source to destination system (Live to Live, Live to BIAR, BIAR to Live).

Tenant promotion using Promotion Management Tool

Promotion Management Tool supports promotion of tenants (along with its dependencies) from source to the destination system by providing options to select and add tenants, and corresponding tenant objects to a job . It

also implies establishing a relationship between tenants and the corresponding tenant objects as dependencies. The feature works in both GUI and CLI mode of promotion management.

Central Management Server Database Driver

You can now access the CMS Repository Database of BI platform for reporting analysis leveraging existing platform features (Connection Server, Semantic Layer, Reporting clients). SAP BusinessObjects Data Access Driver enables you to use a universe to query the CMS Database. For more information, refer http://scn.sap.com/docs/DOC-74580 .

3.3 SAP BusinessObjects Web Intelligence

To have an overview of the new features in this release, watch this video .

Client parity

The Web Intelligence HTML client has been greatly improved to align its functionalities with that of the Java applet. The following functionalities are now available in the HTML client:

- Save as
- Format Number
- Conditional Formatting
- Create documents with BEx queries and Excel spreadsheets as data sources
- Create ranking, subqueries, and complex filters
- Change Source Wizard

Custom Elements

Additional settings have been added in the formatting options so that you can fine-tune how custom elements are displayed in reports. A new *Palette & Style* menu offers increased possibilities to customize custom elements.

SAP HANA Direct Access

Up until now, input parameters and variables were prompted only at refresh time. A variable manager for documents based on SAP HANA views has been introduced so that you can answer prompts, input parameters, and mandatory variables before selecting objects in the query panel. With the variable manager, view available data source variables, set or edit values for every data source variable and fix or prompt values of data source

variables upon refresh. With this latest addition, report designers can answer variables before querying an SAP HANA view, but also manage these variables in the *Query Panel*.

The change source workflow is now available for documents based on SAP HANA Direct Access and BEx universes. You can change to or from both data sources.

SAP HANA Online mode

Partial results are more visible in documents with an icon displayed on each block whose data have been partially retrieved. This addition allows you to check on the data status and integrity, especially if you are using the *Max Rows* and *Query Execution Timeout* options.

Navigation paths can now be displayed so that you can check how Web Intelligence performs drilling operations and navigates through SAP HANA objects.

SAP BW

- Web Intelligence now supports linked nodes.
- SAP BW InfoProvider's last data update date can be retrieved using the QuerySummary() function.
- For SAP BW authored universe, usage statistics are also sent to SAP BW.

Geomaps

Geomap charts have been improved and you can now geo-qualify merged objects and variables, as well as geo-qualify objects using longitude and latitude coordinates. This new geo-qualification method is less error prone when it comes to matching and offers better results when trying to bind a value with a location.

Shared Elements

Shared elements capabilities have been enhanced with this new release of Web Intelligence. Shared elements now support geomaps, custom elements, embedded pictures, categories, and comments. In addition, a new automatic cleaning mechanism that remove useless queries whenever a shared element is added to a report to increase overall performance.

When publishing a shared element, it is also possible to directly link it to its source report element. A new document option is available to automatically update shared elements in the document when opening it, if new updates are available.

Group of input controls

Until now, filters and input controls were independent, leading to inconsistent selections and a complex experience when selecting values from large lists that couldn't be restricted progressively.

With Web Intelligence 4.2 SP3, reports designers can now create groups of input controls that interact with one another, enabling report consumers to define progressive selections by restricting the lists of values of an input control based on the selection made for a previous input control.

These groups can be based on a traditional reporting structure as well as larger and heterogeneous groups facilitating exploration. Groups of input controls use what is called a filter path that reflects the successive selections you've made in a particular group to make for a better data refinement. Using the filter path, you can modify or reset values at any level. You can also completely or partially reset the filter path by excluding an input control from a group to support a fixed hierarchical structure as well as an exploratory scenario.

This solution guarantees flexibility to report consumers in terms of data discovery and filtering.

References

References are shortcuts to cells whose data you want to reuse. They have been introduced to provide more flexibility when designing reports. You can use references anywhere in a report or in a formula. As an example, you can use reference to create a summary report that references figures from other reports. At refresh time, references are replaced by the content of their target cells. References can be consumed in an entire document and used for conditional formats or any other calculation.

Comments

A series of enhancements has been brought to the commenting feature. You can now comment on specific report elements such as charts and tables, but also on individual cells within a table. An icon is displayed next to each block or cell that contains comments. Comments are now also scheduling and publishing compliant, and can be saved along with the document.

Refresh queries in parallel

The parallel data provider refresh feature now supports BEx queries, and new settings have been added in the Central Management Console and the information design tool to let you fine-tune parallel queries at a connection level. As a result, you can manage the maximum number of queries refreshed in parallel per document for OLAP, BEx or relational connections. You can also decide whether you want to enable parallel query processing during scheduling operations.

Sets

You can now consume sets which are used as pre-defined complex query filters in Web Intelligence. A Set is a strucure that contains multiple lists of values for key enabled dimensions in the business layer. The sets can contain static or calendar based data. You can publish your sets to the repository and they are available as Set filters when the associated universe is used as a data source in the *Query Panel*. Although, there are consumed in Web Intelligence, sets are designed and defined in the Information Design Tool. For further information on how to design sets, refer to the *Information Design Tool User Guide*.

Merge variables

You can now merge dimension variables coming from two different queries. With this addition, you can clean up your data using variables and merge them. For maximum efficiency, use the *Arranged by: Query* view to make sure that you select the right objects to merge.

Change Source

Additional change source scenarios are now available, and you can now change source to or from SAP HANA Direct Access or BEx .UNX universes.

Publishing & scheduling

Web Intelligence now supports recipient delivery rules, making it possible to send the publication only if it contains data or if it has been fully refreshed.

New MemberAtDepth() function

You can now retrieve members of a hierarchy at a chosen depth using the new MemberAtDepth() function, and display the hierarchy as a foldable tree.

Miscellaneous

- New *Data Source* view in the *Available Objects* pane.
- New *Query* view in the *Available Objects* pane.
- New possibility to display both value and percentage in Pie charts.
- New StatusOfData paramater for the QuerySummary() function to get the last update date of a BW Info Provider.

- New DPI parameter when exporting to PDF and Excel.

3.4 Multitenancy Management Tool

Password is optional during the configuration of Multitenancy tenant properties file

CMS, Crystal Report DB, and CCIS connection password is optional during the configuration of the tenant file.

If you do not enter the CMS, Crystal Report DB, and CCIS connection password during the configuration of the tenant file, you need to enter the CMS password in the command prompt when running the Multitenancy Management tool.

Creating multiple tenants

You can now create multiple tenants using Multitenancy Management Tool. In the **tenant_template_def.properties** file, you need to enter the tenant names separated by semicolon .

Save the **tenant_template_def.properties** in a folder.

Run the `multitenancymanager.jar` with the tenant definition file passed to the `-configFolder` option, using the following syntax:

```
java -jar multitenancymanager.jar -configFolder <Folder Name>.
```

3.5 The Information Design Tool

To have an overview of the new features in this release, watch this video .

The following new features and enhancements are available in this release of the information design tool:

Sets and Set Filters

You can now create sets which are used as pre-defined complex query filters in Web Intelligence. A Set is a structure that contains multiple lists of values for key enabled dimensions in the business layer. The sets can contain static or calendar based data. You can publish your sets to the repository and they are available as Set filters when the associated universe is used as a data source in the Query Panel.

Single step UNV to UNX conversion for multiple universes and linked universes

You can now convert a single or a group of multiple .UNV universes to .UNX universe format in a single step.

Linked .UNV universes can now also be converted to .UNX universes conserving links to all core universes. You can also choose to include all core universes in a single universe if you prefer.

Displaying a specific view for editing based on loading time indicators

For data foundations with multiple views, you can now choose to open a specific view in the editor instead of the default master view. This can help you save time when you want to work on a subset of the data foundation, and don't need to display the entire content of the Master View. A new *Summary* tab is available that lists views with a color code that gives an indication of the loading time onto the screen. Based on this information you can select a view that will display more quickly rather than the master view which displays all of the available views.

New SQL Generation Parameter

The new SQL parameter NO_NULL_YIELDS_IN_SUBQUERY has been added to the SQL Generation Parameters list. When set to YES, SQL scripts are generated ensuring fields with non NULL values are included for filters based on a subquery. The default value is NO.

Consuming numeric objects with a higher precision

You can now use the Big Numbers feature at the .UNX Universe level and avoid enablement per report. The Big Numbers are a new *High Precision* property to the existing *Numeric* Data Type, based on an IEEE decimal floating point format standard, which enables you to define numeric objects that are expected to be consumed with a higher precision, from 15 digits to 40 digits.

Sorting the views of the Business Layer

You can now define the order of the views of a business layer by using drag and drop.

Defining the count projection function in UNX universes

You can now define the behavior of the count projection function in the UNX universes. Depending on what is defined in the UNX universes, you are able to change which count projection function is used, by using *count with empty* values or *count without empty* values.

Copying a Business Layer view core into a linked Business Layer

You can now copy a Business Layer view that you have already built in a core universe into a linked Business Layer, so that you can reuse everything that has been defined in the core universe.

Copying a Data Foundation view core into a linked Data Foundation

You can now insert a copied version of a Data Foundation view based on a core universe into a linked universe, so that you can reuse everything that has been defined in the core universe.

Repairing a linked universe when the core universe is missing

You can now link a linked universe whose core universe was removed to a new identic or similar core universe.

Samples

In the CMS repository, the folder previously called webi-universe has been renamed into Samples. On Windows Server, this folder contains the converted version of `efashion.unv`, as well as a universe sample called `SPL_Warehouse.unx`. To use this universe, you need to start the Warehouse database instance on SQLAnywhere.

HANA connections

Multi-tenant is supported for SAP HANA connections.

3.6 SAP BusinessObjects Web Intelligence and BI Semantic Layer SDKs

SAP BusinessObjects BI Semantic Layer

- **RESTful Web Service SDK**
  - You can format the Datetime and Numeric values of lists of values according to the `X-SAP-PVL` request header.
- **Java SDK**

- You can add core universes to or remove them from a linked universe.
- You can include core universe components into a local, linked universe.
- You can synchronize the core universes of a linked universe with their latest versions in the CMS repository.
- You can update the paths and names of the core universes used in a linked universe.
- You can retrieve the path of a resource in the CMS repository from its CUID, the CUID of a resource from its path.
- You can retrieve the revision number of a universe.
- You can use query script properties in data foundations and business layers.
- You can add comments to a business layer.
- You can create a business filter.
- You can set, get, and validate an expression of a business filter.
- You can create a list of values based on a business query.
- You can set, get, and validate the expression of a list of values based on a business query.

Error messages of the BI Semantic Layer Java SDK are now documented in the *Business Intelligence Suite Error Messages Explained Guide*.

SAP BusinessObjects Web Intelligence

- **Customization**
  You can hide the following items from the SAP BusinessObjects Web Intelligence user interface through customization in the CMC:
  - Data source items from the *Create a Document* dialog box (or *New Document* dialog box in Web Intelligence Rich Client), the *Query Panel* and the *New Data Provider* dialog box in Design mode
  - Subtab items of the *Report Elements*, *Formatting*, *Data Access*, *Analysis*, and *Page Setup* tabs in Design mode
  - The whole report area contextual menu in Design mode
- **RESTful Web Service SDK now lets you:**
  - Work with shared elements
  - Work with report elements of type custom element
  - Use prompt variants in documents
  - Work with different instances of a document at the same time
  - Schedule documents to SFTP and SMTPS destinations
  - Schedule documents in text format
  - Export a report or report element as plain text
  - Delete a snapshot or all snapshots of a document
  - Format the Datetime and Numeric values of lists of values according to the `X-SAP-PVL` request header
  - Get the current user details
- **UI Extension Points**
  - You can declare an extension and its contributions in a JSON file instead of compiling a Java class.
  - You can write your extension as a non OSGI application and deploy it to the BI platform application server or to an external web application server.
  - You can make your extension contribute to a new perspective.

- New details are returned by `getContext()` JavaScript function.
- **Custom Element Service APIs**
  - The rendering API now returns default color palette settings of the visualization and information on report and document that host the custom element.
  - A new API returns the rendering settings to Web Intelligence.

3.7 Business Intelligence Platform RESTful Web Services

Infostore

This section provides you information on RESTful APIs objetcs in infostore. Using these APIs, you can perform the following:

- Listing objects in infostore
- Getting object details
- Listing children of objects
- Listing relationship of objects
- Getting relationship details between objects

These APIs are implemented with versioning management <vx>=v1.

About Information

About Information API URL displays information about the Build..

These APIs are implemented with versioning management <vx>=v1. For more information, watch https://youtu.be/-BUFfMmBVWo

Timezone Information

Timezone API URL displays information about timezone information of the application server, which deploys web service.

These APIs are implemented with versioning management <vx>=v1. For more information, watch https://youtu.be/OKSDDy0x3R4

Authentication

This section provides you information on Authentication RESTful APIs. Using these APIs, you can perform the following:

- v1/logon/long
- v1/logon/token
- v1/logon/adsso
- v1/logon/trusted
- v1/logoff

These APIs are implemented with versioning management <vx>=v1.

Scheduling

This section provides you information on Scheduling RESTful APIs. Using these APIs, you can perform the following:

- Getting template for scheduling
- Creating schedule now
- Creating schedule once
- Creating hourly schedule
- Creating daily schedule
- Creating weekly schedule
- Creating monthly schedule
- Creating schedule for nth day of month
- Creating schedule for first monday of the month
- Creating schedule for calendar
- Creating schedule for xth day of nth week of month
- Creating schedule for last day of the month
- Getting instances for a report
- Getting instances details of a report
- Getting schedule list for a report
- Getting details of a schedule
- Getting instances details of a schedule
- Sorting and Filtering

These APIs are implemented with versioning management <vx>=v1.

For more information, watch: https://youtu.be/EHWkn_vCkMs and https://youtu.be/hfWZ1k_xmV4

User Management

This section provides you information on RESTful APIs to manage users. Using these APIs, you can perform the following:

- Listing users
- Creating new user
- Getting user details
- Modifying user details
- Deleting users

These APIs are implemented with versioning management <vx>=v1.

User group Management

This section provides you information on RESTful APIs to manage user group. Using these APIs, you can perform the following:

- Listing users group
- Creating new user group
- Getting user group details
- Listing all users in a user group
- Adding users to a user group
- Removing users from a user group
- Listing all user groups in a user group
- Adding user groups to a user group
- Removing user groups from a user group
- Modifying user group details
- Deleting user groups

These APIs are implemented with versioning management <vx>=v1.

Pubilication Personalization

This section provides information to personalize publication. Using these APIs, you can personalize the publication for the following:

- Creating Publication
- Listing Publications
- Adding and Deleting Report Documents
- Adding and Deleting Static Documents
- Adding and Deleting Enterprise Users
- Adding and Deleting Enterprise User Groups
- Adding and Deleting Dynamic Recipients
- Configuring Output Format for Reports
- Configuring Destination Forms
- Configuring Inbox Destination Plugin
- Configure SMTP Destination Plugin
- Configure FTP Destination Plugin

- Configure SFTP Destination Plugin
- Configure File System Destination Plugin
- Listing Schedule Instances of Publication
- Getting Details of Publication and Modifying or Deleting Publication
- Personalizing Publication
  - Global Profiles
  - Local Profiles

These APIs are implemented with versioning management <vx>=v1.

Category Management

This section provides you information on RESTful APIs to manage category. Using these APIs, you can perform the following:

- Listing categories
- Creating category
- Getting details of the category
- Modifying details of the category
- Listing first level children under a category
- Listing first level document in a category
- Deleting category

These APIs are implemented with versioning management <vx>=v1.

Folder Management

This section provides you information on RESTful APIs that uses to manage category. Using these APIs, you can perform the following:

- Listing folders
- Creating folder
- Getting details of the folder
- Modifying details of the folder
- Listing first level children under a folder
- Uploading file to the folder
- Deleting folder

These APIs are implemented with versioning management <vx>=v1. For more information, watch https://youtu.be/ZMnGbRke6fk

Document Management

This section provides you information on RESTful APIs to manage document. Using these APIs, you can perform the following:

- Listing documents
- Getting details of a document
- Modifying details of a document
- Getting the category details of a document
- Deleting a document

These APIs are implemented with versioning management <vx>=v1. For more information, watch https://youtu.be/-eLLkWkGWJ4

CMS Query

This section provides you information on RESTful APIs to query CMS.

The APIs are implemented with versioning management <vx>=v1.

3.8 SAP BusinessObjects Business Analysis, edition for OLAP

Maximum Parallel Queries

When you refresh a document with multiple data providers, the *Maximum Parallel Queries* setting executes queries, while accessing data simultaneously and concurrently with other connections.

The *Maximum Parallel Queries* setting is editable in CMC but Analysis, edition for OLAP ignores *Maximum Parallel Queries* setting.

In CMC, under OLAP connections, when you select the *New Connection* icon, you can see the *Maximum Parallel Queries* field under Extended Parameters.

Maximum Parallel Queries option is enabled for the following data sources:

- SAP Business Warehouse data sources
- Microsoft Analysis Services data sources
- SAP BusinessObjects Planning and Consolidation data sources (Only for NetWeaver)
- SAP HANA data sources

For more information on Maximum Parallel Queries, see SAP BusinessObjects Web Intelligence User's Guide and SAP BusinessObjects Analysis, edition for OLAP Administrator Guide

Preference for Analysis, edition for OLAP

Preferences for Analysis, edition for OLAP in BI Launch pad has the following new options to set default values:

- Default State for Totals
- Default Position for Totals / Parents
- Default Configuration for Nulls and Zeros
- Workspace AutoSave
- Additional details in metadata panels

For more on Preference for Analysis, edition for OLAP, see SAP BusinessObjects Analysis, edition for OLAP User Guide.

Enhancement to the Workspace Autosave

When you save the existing workspace in the current folder, the *Confirm* dialog does not appear.

> **Note**
>
> For more on "Preference for Analysis, edition for OLAP", see the *SAP BusinessObjects Analysis, edition for OLAP User Guide.*

3.9 Crystal Reports for Enterprise

Crystal Reports for Enterprise supports consumption of sets which is now included in universes.

3.10 Data Access

Data source support (New):

- Hadoop Hive (Hive 2) 1.2.1
- HortonWorks 2.3.4 for Hive 1.2.1
- Apache Spark 1.5
- Cloudera Impala 2.3
- HP Vertica 7.2
- DB2 for LUW 10.5 with BLU Acceleration
- Ingres 10.2
- Microsoft SQL Server 2014 for OLE DB
- PostgreSQL 9.5
- HANA SPS11/12

- SAP HANA Vora 1.02
- Teradata 15.1

For more information on the database support, see Product Availability Matrix (PAM).

3.11 SAP BusinessObjects Live Office

Support for new Web Intelligence features in Live Office

Live Office supports the following new features in Web Intelligence documents:

- Shared elements: Live Office can retrieve report elements linked to a shared element.
- Document commentary: Live Office can retrieve cell content containing a comment. Comments defined on report elements are not supported.
- Geomap chart : Live Office can now retrieve Geomap charts.
- Direct access to SAP HANA view: Live Office supports Web Intelligence documents whose data source is an SAP HANA view.
- Parallel data provider refresh: When you refresh a document, Live Office supports parallel data refresh.
- High precision decimal: If a measure has been defined to support 40 digits decimal, Live Office supports data retrieval, but its type is 'Text'.
- Linked universes: Live Office supports queries or documents created from linked universes created with information design tool (.unx universes).

Live Office can now work on Microsoft Office 64 bit.

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