

SAP BusinessObjects BI Suite
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What's New

Content

1	About this document.	4
2	SAP BusinessObjects Business Intelligence Suite 4.2.	5
2.1	Welcome to SAP BusinessObjects Business Intelligence platform 4.2.	5
2.2	SAP BusinessObjects Business Intelligence Platform.	5
2.3	SAP BusinessObjects Web Intelligence.	9
2.4	SAP BusinessObjects Web Intelligence and BI Semantic Layer SDKs.	11
2.5	SAP BusinessObjects Business Analysis, edition for OLAP.	12
2.6	The Information Design Tool.	13
2.7	Data Access.	14
2.8	Business Intelligence Platform RESTful Web Services.	14
2.9	SAP Crystal Reports RESTful Web Services.	14
2.10	Dashboards and Presentation Design.	15
2.11	SAP Crystal Reports (Designer).	15
2.12	SAP Crystal Reports for Enterprise.	16
2.13	SAP BusinessObjects Mobile Server.	17
3	SAP BusinessObjects Business Intelligence Suite 4.2 SP3.	18
3.1	Welcome to SAP BusinessObjects Business Intelligence platform 4.2 SP3.	18
3.2	SAP BusinessObjects Business Intelligence Platform.	18
3.3	SAP BusinessObjects Web Intelligence.	21
3.4	Multitenancy Management Tool.	25
3.5	SAP BusinessObjects Web Intelligence and BI Semantic Layer SDKs.	25
3.6	Business Intelligence Platform RESTful Web Services.	27
3.7	SAP BusinessObjects Business Analysis, edition for OLAP.	31
3.8	Crystal Reports for Enterprise.	33
3.9	Data Access.	33
3.10	SAP BusinessObjects Live Office.	34
4	SAP BusinessObjects Business Intelligence Suite 4.2 SP4.	35
4.1	Welcome to SAP BusinessObjects Business Intelligence Platform 4.2 SP4.	35
4.2	SAP BusinessObjects Business Intelligence Platform.	35
4.3	SAP BusinessObjects Web Intelligence.	40
4.4	The Information Design Tool.	42
4.5	Business Intelligence Platform RESTful Web Services.	43
4.6	SAP Crystal Reports for Enterprise.	45
4.7	Viewing Documents Using OpenDocument.	45
4.8	SAP Crystal Reports 2016.	46

4.9	SAP BusinessObjects Web Intelligence and BI Semantic Layer SDKs.	46
4.10	SAP BusinessObjects Live Office.	48
5	SAP BusinessObjects Business Intelligence Suite 4.2 SP5.	49
5.1	Welcome to SAP BusinessObjects Business Intelligence Platform 4.2 SP5.	49
5.2	SAP BusinessObjects Business Intelligence Platform.	49
5.3	SAP BusinessObjects Dashboards.	52
5.4	SAP BusinessObjects Mobile Server.	53
5.5	SAP BusinessObjects Web Intelligence.	53
5.6	SAP BusinessObjects Web Intelligence Interactive Viewer.	55
5.7	SAP BusinessObjects Web Intelligence and BI Semantic Layer SDKs.	56
5.8	The Information Design Tool.	57
5.9	SAP BusinessObjects Analysis, edition for OLAP.	60
5.10	SAP Crystal Reports.	62
5.11	SAP BusinessObjects Live Office.	62
6	SAP BusinessObjects Business Intelligence Suite 4.2 SP6.	63
6.1	SAP BusinessObjects Business Intelligence Platform.	63
6.2	SAP Crystal Reports for Enterprise.	65
6.3	SAP BusinessObjects Web Intelligence.	66
6.4	SAP BusinessObjects Web Intelligence Interactive Viewer.	68
6.5	Data Access.	69
6.6	The Information Design Tool.	69
6.7	SAP BusinessObjects Live Office.	71
6.8	SAP BusinessObjects Mobile Server.	71
6.9	SAP Crystal Reports 2016.	72

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), xliif 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 NetWeaver 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.

i Note

A BEx authored universe only work as single-source universe.

i 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 :** Retrieves 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 retrieve report metadata is supported in this release.

Using this API, you can retrieve 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.

i 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.

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

For more information, watch <https://youtu.be/mgOknTPb1Bk> 🎥

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 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](#). 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 parameter 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 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.

3.6 Business Intelligence Platform RESTful Web Services

Infostore

This section provides you information on RESTful APIs objects 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.

3.7 SAP BusinessObjects Business Analysis, edition for OLAP

Shorten Drillthrough column names

Administrators can configure the display of the report column names to make them easier to read.

Enhance CMC Security options for export action

Administrators can now configure the security rights to allow users to export their crosstab and charts components to Analysis View, PDF, Excel or CSV format.

Display additional details about connected Data Source

A consistent Data Source description for all kinds of OLAP Connections is now available.

In the *Data Panel*, a list is displayed with all the active data sources that have been added to the workspace and the name of their connection. You can easily identify where the data comes from by hovering over a selected data source, as the connection, the cube and the provider appear in a tooltip.

Search for OLAP Connections in 'Open Data Source' wizard

In the *Open Data Source* dialog box, you can search for OLAP Connections by typing the name or the description of a data source, and you can filter your search by connection type.

Display information about list of visible levels for a Hierarchy

When you hover over a hierarchy, a tooltip displays the list of all the visible levels.

Support for SSO authentication to HANA HTTP source

You can now use SAML SSO to authenticate to HANA with HTTP (InA) provider.

Avoid warning when member in Workspace is missing from the Cube

You can now choose whether you want to be warned when some objects that are used in an existing query have been modified or removed from the cube.

The View Access Level doesn't grant the right to create Workspaces anymore

Now, users can't create and can't add or delete a connection. This change will not be leveraged when upgrading an existing installation.

Fill date based on User Profile's format in Prompt Panel

A new date format setting on the SAP BW or SAP HANA servers can be applied to all date values.

If the following prompts are date values, you can enter them in the *Prompts* dialog box by typing a date based on your user profile's format, or by selecting a date from the calendar:

- Key date
- Single value
- Multiple single value
- Range
- Complex selection

Visual indicator when Workspace has unsaved modifications

Modified or unsaved files are now indicated with an asterisk (*) character.

Use configured default display for Member Selector of Prompt

By default, the Member Selector of Prompt uses the display configuration defined at the SAP BW Characteristic level. This behavior change is not restricted to the prompt, but applies to all dialog boxes that allow you to select members.

3.8 Crystal Reports for Enterprise

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

3.9 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).

3.10 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.

4 SAP BusinessObjects Business Intelligence Suite 4.2 SP4

4.1 Welcome to SAP BusinessObjects Business Intelligence Platform 4.2 SP4

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.

4.2 SAP BusinessObjects Business Intelligence Platform

Following are the key new features in SAP BusinessObjects Business Intelligence Platform:

Installation of Microsoft VC++ Redistributables on Windows OS machines

SAP BusinessObjects BI Suite of products including installers of all suite of products expect the Visual C++ Redistributable 2015 level of runtime for better execution. Hence the following **redistributables are required to exist in all the supported Windows operating system machines:**

- Microsoft VC++ 2015 Redistributable (x64) (v 14.0.24210)
- Microsoft VC++ 2015 Redistributable (x86) (v 14.0.24210)

These redistributables are packaged as part of the installers so that they are installed during fresh and update installations.

i Note

The installation of these redistributables fails on Windows machines with the earlier versions of the Windows operating system, that is on versions prior to Windows 10 or Windows Server 2016 (if those systems are not up

to date with Windows update) because of their dependency on the Universal C Runtime. Please refer to the following SAP Note <https://launchpad.support.sap.com/#/notes/2451830> for more details.

Security Enhancements

The security enhancements include latest Cipher Suits, increase in minimum key strength of certificates from 1024 to 2048, and support of TLS 1.1 and 1.2. For more information on security updates, refer to [2433337](#).

Update in the Default Bundled Version of Apache Tomcat

Apache Tomcat to **8.5.13** is now the default bundled application server (which was 8.0 earlier) with the BI installer.

Update in the Default Bundled version of SQL Anywhere database

SQL Anywhere **17** is now the default bundled database with the BI installer.

Support for Special Characters in the CMS Administrator Password During Installation

You can use special characters when changing administrator password for the CMS during installation of the BI platform.

i Note

For more information on the above listed features, see the *Business Intelligence Platform Installation Guide for Windows/Unix* available on the SAP Help portal: <https://help.sap.com/viewer/index>

Upgrade of the BI platform Add-ons is required (based on the Platform-Compiler-Version Upgrade in SP04)

In BI 4.2 Support Package 04, the BI platform compiler version has been upgraded. Since the BI platform add-ons, such as Lumira Server for BI Platform, Design Studio BI Platform Add On and Analysis for Office BI Platform Add On are tightly coupled with the BI Platform, they need to be upgraded to the same compiler version.

We recommend that you review certain guidelines when planning your platform update or fresh installation of SAP BusinessObjects BI 4.2 SP04 with add-ons. For more details, refer to the SAP Note: <https://launchpad.support.sap.com/#/notes/2467541>.

New Supported Operating System and Database Versions

- SAP Net Weaver Java Application Server 7.5 Support Package 5 support
- Red Hat Linux 7.2 support
- IBM AIX 7.2 support
- Oracle Linux 7.2 support (with both Unbreakable Enterprise Kernel [UEK] and Red Hat Compatible Kernel [RHCK])
- MaxDB as the CMS & Audit database during installation

For more information, please see the *Product Availability Matrix document* (PAM) available on the SAP Help portal: <https://help.sap.com/viewer/index>

New SAP Crystal Reports JavaScript APIs

The following five new `SAP.CR.Viewer` APIs are introduced:

- `setEnabledDrillDown`
- `setToolPanelViewMode`
- `setHasToggleGroupTreeButton`
- `setHasToggleParameterPanelButton`
- `setHasSearchButton`

For more information, refer to the *SAP Crystal Reports JavaScript API Developer Guide* available on the SAP Help portal.

i Note

The SAP Crystal Reports JavaScript APIs are included as part of the SAP BusinessObjects Business Intelligence platform installation.

New Fiorified Business Intelligence Launch Pad

The new BI Launch Pad is a modern version of the classic BI launch pad application, built for maximum productivity. It has a fiorified user experience that makes the user interface (UI) simple and intuitive. With the ever-so-simplified UI, it is now that much simpler to access, view, organize, and manage your BI objects.

For more information about the Fiorified Business Intelligence Launch Pad, refer the *Fiorified Business Intelligence Launch Pad User Guide*. You can also watch these how-to videos: <https://youtu.be/BANnODHS4hA> , <https://youtu.be/xnUaDKUcMPM> , <https://youtu.be/YtHdLHIOLAQ> , <https://youtu.be/5s8Wkqh8xYY> and <https://youtu.be/YPkPYwjimCE> .

Virus Scan Interface

You can commit different kinds of files (Adobe Acrobat, Microsoft Excel, Microsoft Word, Microsoft Powerpoint, Lumira, Crystal Reports, Web Intelligence, etc.) to the BI platform via the CMC, BI launch pad, REST Web Services, and custom SDK applications. These files are subjected to size check (to ensure the file size is not zero) and permission check on destination directory. With the introduction of Virus Scan Interface in BI 4.2 SP4, files you commit to the BI platform are also committed to virus scan to ensure that the content of such files is not infected and is virus-free.

For more information about the new virus scan interface, refer the *Business Intelligence Platform Administrator Guide* and watch this how-to video: <https://youtu.be/t4IPexKxUJY> .

Assigning a Folder to a Server Group

You can now assign a folder to a particular server group with the introduction of *Default Settings* option. You can choose to assign a server group to a folder by selecting any of the two radio buttons: *Give preference to servers in the selected group* or *Only use servers in the selected group*. Similarly, you can assign server groups for viewing or processing Crystal Reports and Web Intelligence documents by navigating to *Default Settings*, and *Crystal Reports Process Settings* and *Web Intelligence Process Settings* respectively.

For more information about assigning folder to server group, refer the *Business Intelligence Platform Administrator Guide* and watch this how-to video: <https://youtu.be/r7pNCc44z0A> .

Enhancements in setting up SMTP over SSL

You can now select the desired *Connection Security* and *TLS version* when you are setting up SMTP over SSL. By default, StartTLS and TLS v1.0 options are selected. You can choose to select SSL/TLS for connection security and TLS v1.1 or TLS v1.2 for TLS version. Also, from BI 4.2 SP4, the SMTP certificate name and location are no longer hardcoded and you need to enter an absolute path to the SMTP certificate.

For more information about SMTP enhancements, refer the *Business Intelligence Platform Administrator Guide* and watch this how-to video: <https://youtu.be/eqnqzUde5f4> .

Two Factor Authentication

X.509 authentication is supported for Web Services that includes RESTful and SOAP services.

Cleaning Up System Landscape Directory

You can clean your system landscape directory server before any patch installation to avoid accumulation of unnecessary data. For more information on cleaning up the system landscape directory server, refer *Business Intelligence Platform Administrator Guide*.

SAP HANA Connection

You can now choose the connection types and enter your service provider while creating an SAP HANA connection. For more information, refer *Business Intelligence Platform Administrator Guide*.

CMS Reporting

With the CMS database driver, you can now easily report on the metadata objects of the CMS database. The CMS database driver enables the use of a universe and native reporting clients to query the metadata objects of the CMS repository database.

This new feature targets administrators who want to analyze and optimize the usage of the Business Intelligence platform.

The CMS database driver comes with a CMS reporting sample kit, which is designed to give you a quick start to reporting on the CMS.

Integration with Fiori Launchpad on SAP Enterprise Portal

Thanks to the Integration with Fiori Launchpad, end users can now view BI reports on the SAP Business Objects Enterprise system.

This new feature targets Fiori users who want to easily view BI content. You no longer need to create and maintain the access to BI reports for the end users on Fiori Launchpad platforms. BI reports are now accessible without any manual action for each report on your end.

For more information, refer to [Integrating SAP BusinessObjects Enterprise](#).

Limiting documents in Inboxes

Setting limits enables you to automatically delete documents in the BI platform. You can set limits in inboxes by navigating to *Limits* in the *Inboxes* management area of the CMC. The limits you set on an inbox affect all objects in the inbox. At the inboxes level, you can set limits for:

- The number of documents for all user Inboxes, specific user Inbox, and Inbox of users of a specific group.

- The number of days that Inbox documents are retained for a user or users of a specific group.

4.3 SAP BusinessObjects Web Intelligence

To have an overview of the new features in this release, watch this [video](#) .

Web Intelligence Interactive Viewer

Web Intelligence Interactive Viewer is a redesigned version of Web Intelligence, with which you consume documents and reports in a new way. It offers a new user experience and comes with the same features as Web Intelligence *Reading* mode, plus some extra functionalities that will help you interact more with documents and reports.

Client parity

The Right to Left content alignment option in the HTML client is now available, so that you can view any document from right to left.

You can now create documents based on Free-Hand SQL scripts in the HTML client on top of relational connections without using universes.

New gauge charts

Three new gauges charts are now available in Web Intelligence: Angular Gauge, Linear Gauge and Speedometer. Gauges are charts that indicate the location of data points across a particular range.

Use gauge charts as value indicators in reports to display key performance indicators, progress indicators or quantity indicators, and get instant comparisons between your data at a certain point in time and a defined target.

Custom Elements

The support of custom elements has been extended to let you visualize thumbnails of custom elements right before you insert them in your report.

This support package also offers compatibility between custom elements and extension points. You can now configure a custom elements in the CMC using extension points, and grant custom elements access to extension points APIs. In the HTML client, you'll also be able to customize custom elements using extension points.

New Free-Hand SQL security right

A new security right has been added so that administrators can decide whether it's possible to run SQL scripts on a given relational connection. This addition is crucial for IT and SQL experts that want to run complex SQL queries using database functions that aren't supported by universes.

Automated Web Intelligence change source from UNV to UNX

BI administrators can now change the data source of multiple Web Intelligence documents from UNV to UNX in a single workflow. A sample utility enables you to change the source of several documents in one go from UNV to UNX. This is particularly useful after you have converted a UNV to UNX and want the documents that were using the UNV to query the converted UNX.

This sample utility is provided as a set of Web Intelligence and an Excel file contained in a BIAR file, that you must import to the CMS repository using the Promotion Management Tool. This sample utility is available in your installation folder, in the `Samples/wics` folder that contains:

- The BIAR file named `BIAdminWebIChanceSource.lcmbiar`.
- The PDF documentation. Refer to this documentation for more details about how to use this utility.

i Note

This feature has been redesigned in 4.2 SP5 and can now be achieved through the BI Administration Console.

Using BEx hierarchy levels as individual objects

Web Intelligence now creates individual objects when retrieving a BEx hierarchical object. Levels are displayed in the *Available Objects* pane as individual objects so that you can reuse them in your reports.

New DatesBetween function

The new `DatesBetween` function allows you to calculate the number of periods between two dates, irrespective of the time. You can calculate either in years, semesters, quarters, months, weeks, days or hours. This function serves as an improvement to the `DaysBetween` and `MonthsBetween` functions that only return results in days or months.

New TimeBetween function

The new `TimeBetween` function allows you to calculate the number of periods between two dates, taking the time into account. You can calculate either in years, semesters, quarters, weeks, days, hours, minutes, seconds or

milliseconds. This function serves as an improvement to the DaysBetween and MonthsBetween functions that only return results in days or months.

4.4 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:

What's new
<p>CMS password can be viewed:</p> <p>When you log into the CMS, you can click the eye icon to display the actual text you type when entering the login password.</p>
<p>Republish universe:</p> <p>When you select republish universe, the interface automatically proposes the same location where the universe was previously published.</p>
<p>Check Integrity:</p> <p>Check integrity also check the validity of sets and groups. You can set Check Integrity to skip deprecated and hidden objects to have a faster execution.</p>
<p>Sets - Set Editor perspective</p> <p>Configure the information design tool to start up in a dedicated Set Editor perspective. The information design tool can be used to create, edit, and delete sets and groups of sets within a pre-declared Set Container. The user cannot navigate either the local project view or the repository view (these views are hidden). The user cannot interact with database elements or universes. The administrator edits and distributes the configured file. Refer to the user guide for more information.</p>
<p>Sets - Visual Data Step enhancements:</p> <ul style="list-style-type: none">• Limit the number of rows returned in the visual data step editor.• Attributes are now supported.• Measures are now supported. You can now insert visual data steps based on measures.• Contexts and input parameters (prompts) are now supported.• Custom values can be added to set lists. You can insert missing values or add custom values to a list.
<p>Sets - Sets editor improvements:</p> <ul style="list-style-type: none">• Unleash the full power of the Query Panel to create complex filter steps. You can now add a Query Panel step to a set.• You can now change the parenthood/hierarchy of the sets in the Set Container rather than having to copy the sets.• You can move steps up and down in the step view. The order of the steps is updated accordingly.
<p>Sets - New Query Panel step:</p> <p>You can now define a Set step using the Query Panel. The Query Panel supports input parameters (prompts) and contexts,</p>

What's new

Sets - The Sets on Sets interface has been improved and includes the following enhancements.

- Use the contexts and parameters defined in the data foundation to make your queries more dynamic.
- A new Venn diagram user interface is available so you can understand your data at a glance.
- You can now combine sets based on different, but compatible, subjects.

Sets - Processing groups: You can now define groups of sets. The processing group is run/scheduled from the CMC.

4.5 Business Intelligence Platform RESTful Web Services

The BI platform RESTful Web services SDK 4.2, Support package 4 **provides a large number of new APIs to developers for accomplishing various administrative tasks.**

A brief summary of the new APIs is provided here. For more information on these APIs, refer to the *Business Intelligence Platform RESTful Web Service Developer Guide* for 4.2, SP4 available on the SAP Help portal: <https://help.sap.com/viewer/index> or **watch the how-to video** at <https://youtu.be/Y3d5IGsuE98> 🖱️

New APIs for Managing Users

There are REST APIs for the following tasks:

- Specifying Locale and Time-zone information for current user
- Listing Available Locales and Timezones
- Changing Password of Current User

New APIs for Managing Scheduling

There are REST APIs for the following tasks:

- Finding Available Server Groups for Scheduling
- Fetching Available Calendars and Calendar Dates

New APIs for Managing Documents

There are REST APIs for the following tasks:

- Assigning a Document to Categories
- Removing Categories from a Document

-
- Sending Documents To Various Destinations

New APIs for Managing Publications

There are REST APIs for the following tasks:

- Configuring Merged PDF Settings
- Configuring the Scheduling Server Group
- Configuring Advanced Settings
- Configuring Notifications For Scheduled Publications
- Configuring Events For Scheduled Publications
- Configuring Delivery Rules
- Fetching Distribution Failure Information

APIs for Managing the Recycle Bin

There are REST APIs for the following recycle bin administrative tasks:

- Listing Recycle Bin Items
- Retrieving Properties of Recycle Bin Items
- Restoring Items from the Recycle Bin
- Deleting Items from the Recycle Bin

APIs for Managing Alerts and Notifications

There are REST APIs for the following tasks:

- Listing Alerts for the Current User
- Getting Details of an Alert
- Editing Alerts
- Deleting Alerts
- Getting Notification Banner Details
- Getting Count of Notification Banners

4.6 SAP Crystal Reports for Enterprise

Linking to Analytics Extensions Directory

Use the [Get Partner Extensions...](#) button to link to the Analytics Extensions Directory website.

Improved workflow for mapping

Mapping data sources is now easy with the simplified workflow. For more details, see the *SAP Crystal Reports for Enterprise User Guide*.


4.7 Viewing Documents Using OpenDocument

"Send To" option enabled

The [Send To](#) option is now available in Web Intelligence and Crystal Report documents using OpenDocument. By using this option, you can send your documents to other users using the following options:

- [E-Mail](#)(SMTP)
- [BI Inbox](#)
- [FTP](#)

Note

In Web Intelligence reports, you can see the [Send To](#) icon () on the toolbar. For Crystal Reports, you need to choose [File](#) to see the [Send To](#) option.

Support for the `pv1` parameter in Crystal Reports

The `pv1` parameter can be used to set the preferred viewing locale. For details, see the *Viewing Documents Using OpenDocument*.

4.8 SAP Crystal Reports 2016

Support for Server Group Settings

Server group setting on User Group/Folder Viewing is supported in Crystal Reports via Crystal Reports Cache/Processing Server. Setting of Exclusive Server Groups is also supported.

4.9 SAP BusinessObjects Web Intelligence and BI Semantic Layer SDKs

SAP BusinessObjects BI Semantic Layer

- **Java SDK**
 - You can retrieve the universe business and data security profiles in one operation and edit them locally in cache before publishing back to the universe. This method is an improvement in performance (before 4.2 SP04, you had to retrieve the settings profile by profile). There is a corresponding new OMD.

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:**

New supported features in SAP BusinessObjects Web Intelligence RESTful Web Service SDK:

- Report element axes,
 - Get the detail of an axis
 - Update the axis of a report element
 - Get the axis expressions of a report element
 - Get the details of a break in a table
 - List all the breaks on a table's axis
 - Get the ranking in a report element
- Report element structure/sorting
 - Get sorts in a report element
 - Update sorts in a report element
 - Delete sorts in a report element
 - Get a sort in a report element
 - Update a sort in a report element
 - Delete a sort in a report element
- Input controls
 - You can author and set group input controls for reports
 - You can author and set group input controls for documents
 - Get the list of values of a document inputcontrol
 - Get the list of values of a document inputcontrol with options
- Comments
 - Get visible comments of a report
 - Get visible comments of a page range of a report
 - Get all comments of a report element
 - Get a specific comment of a report element
- Security rights
 - Get allowed security rights of the Web Intelligence application for the current session.
 - Get allowed security rights of a document.

Enhancements to existing APIs

- Reports
 - Export a report in paginated mode: it is now possible to provide a versatile page range to export
 - Get detail of a specific report now returns extra information: the pagination model
 - You can enable/disable the folding in the report when getting report details
 - Copying a report, you can specify 'showDataChanges' and 'showFolding' at creation time
 - Get the map of a report now returns more detail: a "final" attribute has been added to each <node> element. If "true" the node is a leaf, else a node with children
 - Update properties of a report, you can now update the name of the report, the showDataChange and showFolding properties
- Report elements
 - `isLinkedToSharedElement` attribute in the report element details
 - Support of report elements of type custom elements
 - Get the elements of a report has a new parameter: `allInfo`: (type=boolean, default=false) if set to true, the details of each report element is included
 - Get the details of an element of a report has a new parameter: `datapath`: (type=string) allow to specify a datapath

- Exporting documents, reports, and report elements
 - Exporting Documents, reports, or report elements
 - Export a page or range of a report, `pageIndex` has been superseded by `pageRange`
 - Exporting a report element: updated parameters
- Refresh document
 - Refreshing documents, you can now refresh a document even if one or more of its data provider is not accessible
 - Cancelling a document refresh now returns extra information
- Other enhancements
 - About: get basic information about the BOE version
- Deprecated APIs
 - The APIs to manage report element sort based on its axis are now deprecated and replaced by the `/sort` APIs
 - Delete the axis sorts in a report element. Use the `/sorts` API instead

4.10 SAP BusinessObjects Live Office

Following are the new features in Live Office:

- Live Office supports Web Intelligence documents for Custom Element: Live Office can retrieve custom element as a chart image from Web intelligence reports.
- Live Office supports Duplicate Row Aggregation.

5 SAP BusinessObjects Business Intelligence Suite 4.2 SP5

5.1 Welcome to SAP BusinessObjects Business Intelligence Platform 4.2 SP5

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 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.

5.2 SAP BusinessObjects Business Intelligence Platform

Following are the key new features in SAP BusinessObjects Business Intelligence Platform 4.2 SP5:

What's New in the Installation of Business Intelligence Platform

- Deployment support for Tomcat 9 using Wdeploy: You can also deploy the BI platform to your Tomcat 9 application server using Wdeploy post installation.

i Note

Tomcat 9 is not bundled within the default BI installer. The default deployment using the BI platform installer still uses Tomcat 8.

- Deployment support for Websphere using Wdeploy: You can also deploy the BI platform to your Websphere application server using Wdeploy post installation.
- Update to the Bundled JVM Version: The bundled JVM version of the BI platform installer is updated from 8.1.015 to 8.1.030

What's New in the Business Intelligence Platform

BI Administration Console

BI Administration Console is an SAP Fiori Launchpad site which acts as a single point of access to two Web based applications: *Landscape Management* and *Automation Framework*.

Landscape management is an application that lets you access and manage your BI landscapes centrally. Automation Framework enables you to automate the complex and repetitive BI tasks, for example, to change the source universe of Web Intelligence documents or the license type of multiple users.

BI Administration Console is listed as an application in the Central Management Console (CMC) for managing rights and granting roles/privileges to administrators and delegated administrators. You can access the application by navigating to the BI Administration Console's URL: <server_name>:<port_number>/BOE/BIAdminConsole.

For more information on BI Administration Console, refer to the *BI Administration Console Guide* posted on [BI Platform page of the SAP Help portal](#).

The default agent is present in the Collaterals folder of the install package.

Enhancement to the BI Platform Java SDK

The BI platform Java SDK now provides you with an API to change the password of non-enterprise users including BW users. For more information, refer to the *Business Intelligence Platform Java SDK Developer Guide* available on [BI Platform page of the SAP Help portal](#).

Support for RESTful Web Service APIs on Apache Tomcat server

The BI platform architecture now supports both the WACS server and the Tomcat server for configuring and using RESTful Web service APIs. For information on configuring the Tomcat server for RESTful Web services, refer to the *Business Intelligence Platform RESTful Web Service Developer Guide* posted on the [BI Platform page of the SAP Help portal](#).

Security Enhancements

BI 4.2 SP05 supports SHA-256 hashing mechanism.

New Scheduling Status: Expired

The scheduling status of an instance is set to Expired if the instance doesn't run or the BI platform doesn't find an available server before the specified time to schedule an object. In Business Intelligence platform 4.2 Support Package 4 and earlier, the status was set to Failure for the same scenario.

BW Events

BW events are used for configuring an event-based schedule of reports, which are based on a BW data source. In the BW system, the BOE trigger event, a process type in a BW process chain, triggers BW events for the BI platform.

Supporting SSL Communication from Audit and CMS Database to CMS

Business Intelligence platform supports SSL communication between the CMS and databases like CMS database and Audit database. You should use SQL Anywhere, SQL Server, and SAP HANA databases as a CMS or Audit database to communicate securely with CMS.

Change SAP ABAP Password from BI platform

You can now change your SAP ABAP system password from the BI platform when the password expires or when an SAP ABAP administrator changes it. In Business Intelligence Platform 4.2 Support Package 4 and earlier, a user had to navigate back to the ABAP system to change the password.

GENPSE Tool

You should use the GENPSE tool to generate SHA2-signed certificates for SIA SSL setup.

Enhanced Event Detail Recording in AUDIT_EVENT_DETAIL Table

In Business Intelligence Platform Support Package 4 and earlier, the BI platform records the User Group Details for Logon event in the AUDIT_EVENT_DETAIL table even if User Group Details is not selected under Set Event Details. Refer to the *Business Intelligence Platform Administrator guide* for more information.

SAP HANA Connection

You can test the SAP HANA SAML connection for a secured JDBC connection. Refer to the *Business Intelligence Platform Administrator Guide* for more information.

Add Custom Headers

You can add custom internet headers to the emails scheduled from SAP BusinessObjects BI platform. With an internet header, you can obtain information about who created the message, the email server the message has passed through, and the tool or software used to compose the message.

Individual Rights for Each Scheduling Destination

You can assign rights to a user for scheduling objects to different destinations like FTP, SMTP, SFTP, File System, and BI Inbox. In Business Intelligence Platform Support Package 4 and earlier, you can assign only one right [Schedule to destinations](#) for all destinations.

Publications

Publication supports server group assignments at the folder and user group level.

Server Group Rights Management

You can control and manage access rights on server groups for each user or user group.

SAML 2.0 Authentication





The Business Intelligence Platform supports SAML 2.0 as an authentication mechanism for single sign-on experience. This means that you can now log on to a cloud application like Analytics Hub or SAP Analytics Cloud and access the resources in BI applications like Fiorified BI Launch Pad, BI Launch Pad, and Open Document during the same logon session.

Promotion Management Wizard

You can promote the full content of a repository or selective content of a repository, without using the command line. The Promotion Management Wizard is an easy-to-use graphical interface that supports the three main promotion scenarios: exporting a BI resource from a source system to an LCMBIAR file, replicating a BI resource from a source system to a destination system, and importing a LCMBIAR file to a destination system.

What's New in Fiorified Business Intelligence Launch Pad

Following are the key new features and enhancements in the Fiorified BI Launch pad:

- **Adding image to category:** You can now add an image to a category and edit it. For more details, refer to the *Fiorified Business Intelligence Launch Pad User Guide* on the [SAP Help Portal](#).
- **Sorting, Filtering, and Resizing options:**
You can now sort and filter objects using the *Sort ascending*, *Sort descending* and  (Filter) options available in the column headers. You can also now resize your table columns to fit your content.
- **Context Refresh:** A new  (Context Refresh) icon allows you to refresh content in any page of the application that you are in.
- **New Variant Filter options:**
 - You can use the *My Recently Viewed* option in the variant filter to filter the last 10 documents that you viewed. By default, the *My Recently Viewed* option is selected, and your most recently viewed content objects are displayed.
 - You can use the *My Recently Run* option in the variant filter to filter the last 10 document instances in the repository that you scheduled or ran.
- **Web Assistant:** You can now access context-sensitive in-app help using Web Assistant. You can launch Web Assistant by choosing  (Web Assistant) on the home page. You need to configure the proxy settings to enable Web Assistant; for details, see the 'Configuring proxy settings to enable Web Assistant in the Fiorified BI Launch Pad' topic in the *Business Intelligence Platform Administrator Guide*.
- In BI 4.2 SP5, the Fiorified Business Intelligence Launch Pad offers an enhanced scheduling experience for users.
- **Mark as Favorite:** When you mark an item as a favorite, it is flagged with the  (Favorite) icon in the tile view and the list view, thus helping you to easily locate your favorite items.
- You can now view Lumira documents with .lumx extension in the Fiorified BI Launch Pad.

5.3 SAP BusinessObjects Dashboards

HTML Support

You can now export Dashboards in HTML/Javascript format. You can view the generated HTML dashboard in browsers without the need for third-party softwares like Adobe Flash Player, etc.

For more details, refer the *Dashboards and Presentation Design User Guide* on the SAP Help Portal.

5.4 SAP BusinessObjects Mobile Server

Feature to View a Document's Folder Path

To view a document's folder path using the *More Information* option available in the SAP BusinessObjects Mobile application, log in to the CMC, and enter the parameter `feature.home.folder.enabled` and set its value to `true`.

i Note

This feature is supported from SAP BusinessObjects Mobile application for iOS version 6.7

5.5 SAP BusinessObjects Web Intelligence

Scheduling and publishing enhancements

It's now possible to specify delivery rules are now available when scheduling content to avoid sending erroneous or empty documents. You can now decide to send content only if:

- It has been successfully refreshed
- It contains data

In addition, you can indicate a status, *Warning* or *Failed*, to display if the content doesn't meet one or both of these conditions.

Formatting multiple report elements

You can now format multiple report elements simultaneously. Resizing, aligning, defining borders, background colors, or relative positions are examples of what is possible when formatting multiple report elements simultaneously.

Change source and custom SQL scripts

Custom SQL scripts are now preserved after a change source operation.

Breaks

You can now create different types of breaks.

With same level breaks, the header is displayed at the same level whenever you select multiple objects for a break. The breaks depend on the layout of the table, meaning that the first break happens whenever a value of the first object in the table layout changes.

With value based breaks, You can create breaks based on specific values that you have selected. A new [Values](#) button next to the Value-based breaks option allows you to select values for the break. The header and the footer only display for the values that you have selected. The breaks happen on the values you have selected.

Customize hierarchy order

A new option allows you to decide whether you want to display children or parents first in a table that contains one or several hierarchies.

Export to CSV archive

You can now export content in a ZIP file with a CSV file.

Prevent CSV Command Injection

To prevent security risks when exporting to .CSV format and opening a .CSV file in Excel, Web Intelligence now automatically formats the data contained within the file. If necessary, you can ask your administrator to disable this behavior.

HTML white list

Administrators can now explicitly specify authorized HTML elements to increase security.

For more information, refer to the *Managing Web Intelligence settings* section of the *SAP Business Intelligence Platform Administrator Guide*.

For more information on these new features, refer to the *SAP BusinessObjects Web Intelligence User's Guide*.

5.6 SAP BusinessObjects Web Intelligence Interactive Viewer

Increased interactivity

Chart interactivity has been increased with direct actions.

In *Standard* mode, you can now directly apply element links, drill, change the drill focus, and expand or collapse a hierarchy in a single click or tap. The chart quality is also improved on zoom and de-zoom.

Standard and *Advanced* modes have been harmonized for right-click actions. A single right click selects a cell directly. In *Advanced* mode, the left click now selects a report element, and a second click selects a feed in a table.

Comments

As of this release, you can enter, edit and delete comments.

Complex prompts

Web Intelligence Interactive Viewer now supports complex prompts in reports based on SAP BW and SAP HANA data sources. You can for instance change the operator or enter values manually when refreshing a report or answering prompts in the *Prompts* dialog box.

Open in Designer

A new option allows you to go back to a classic Web Intelligence client to benefit from the full feature set, and edit the report you are currently viewing, add report elements, new filters, element links and much more.

Fold/Unfold

A new *Enable folding actions* option in the toolbar now lets you fold or unfold sections, tables, and breaks.

Undo/Redo

An undo/redo mechanism has been introduced to offer increased flexibility when interacting with a report.

Scheduling

New options are available when you schedule Web Intelligence content via the Fiorified BI Launch Pad. You can now include prompts and select the newly available .HTML archive format.

New export options

New export options are available when you export to .PDF and .XSLX formats. It's also possible now to export to the .HTML format.

For more information on these features, refer to the *SAP BusinessObjects Web Intelligence Interactive Viewer User Guide*.

5.7 SAP BusinessObjects Web Intelligence and BI Semantic Layer SDKs

SAP BusinessObjects BI Semantic Layer

Java SDK

The following methods have been added to the BI Semantic Layer Java SDK:

- You can change a data foundation connection without having to load the previous connection into memory. This was the case before SAP BI 4.2 SP5 and if the connection is not valid, the connection cannot be changed.
- A new attribute `HighPrecisionDecimal` is available for Measure. It is exposed through:
 - `Measure.getHighPrecisionDecimal`
 - `Measure.setHighPrecisionDecimal`
- A new attribute `SetCustomNavigationPath` is available for business layers. This attribute defines which navigation path to use: the default or the custom one you have defined.
- For UNV to UNX conversion, a new method `convertUniverse` is available for conversion. It takes a `ConversionOptions` object as parameter. It contains possible options for conversion:
 - `setConversionDateType` to convert Date values to a DateTime or a Date;
 - `setPromptConverted` to convert prompts to prompt objects or to keep the @prompt;
 - `setCoreUniversesIncluded` to force core universe to be duplicated into derived universe;
 - `setOverwritten` to overwrite a universe if it already exists.The previous conversions methods are still supported but are declared as being deprecated.
- You can order business layer views. This order is that of the business layer in the `BusinessLayer.BusinessLayerView` list.

SAP BusinessObjects Web Intelligence

RESTful Web Service SDK

SAP BusinessObjects RESTful Web Service SDK for Web Intelligence and the BI Semantic Layer 4.2 SP5 (December 2017)

New features supported in SAP BusinessObjects Web intelligence RESTful Web Service SDK:

- Comments
 - Add new comments
 - Modify comments
 - Delete comments

Enhancements to existing APIs

- Scheduling documents
 - When creating a schedule, add a delivery rule and specify the status it returns when the condition is not met
 - Support of two new status `Expired` and `Warning`
 - Support of two new formats `csv_archive` and `html_archive`
- Variables
 - Add a description to the variables you create or update using the new `description` property
- Change Source
 - Speed up the change source process using the `skipChecking` parameter.
- Fold/Unfold
 - A new `fold` attribute is now stored in the axis or break definition
 - Use `datapath` and `reference` new parameters to identify specific instances of an element
- Breaks
 - Create same-level and value-based breaks
- Save As
 - Assign categories to a document when you save it
 - Assign two properties, `refreshonopen` and `permanentregionalformatting` when saving a document
- Document instances and occurrences
 - Prevent server timeouts for documents or occurrences using the new `KeepAlive` pseudo-state
- Report element
 - Get the picture of a custom element
 - Restrict the number of datapaths you retrieve and offset them using the new `limit` and `offset` parameters

5.8 The Information Design Tool

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

Information Design Tool Enhancements

The information design tool can be used in sets edition mode only, where the user can only use the sets editor. There is now a standalone guide *Creating and Building Sets with the Information Design Tool*.

What's new

CMS Management:

You can add a description for a defined session.

CMS:

You can now copy the System Name and object paths in the CMS. In the Repository View, you can right-click on a system and copy the system name. You can also right-click on an object and copy the object name.

CMS:

You can clone the CMS: copy your production CMS and create copy on a different machine.

The tool can now repair a broken object. When a table that is referenced by an object has been deleted, you can now add a new table to replace the original (missing) table and the tool will perform the necessary rebinding for the object.

Universes:

To prevent other users working on a universe that you are modifying, you can now lock the universe.

Universes:

When converting a unv universe to unx format, you can choose how to convert date format: keep the converted format as Date format, or convert the date format to DateTime format.

Joins and Contexts:

Managing and selecting joins and contexts has been improved.

HANA variables

Keep last value for HANA variable. In the HANA table properties pane, the Variables tab now gives you the option to keep the last value used for any variable in the pane.

HANA multi-tenant support:

HANA2 multi-tenant data sources are now supported.

Query Panel Show SQL option:

In the Query Panel Step expression editor, you can now select to show the SQL expression for an @SELECT or @WHERE variable. When the SQL expression is displayed, the editor is in view mode only.

Mandatory filters:

Mandatory filters are now identified for business layer authoring.(Visible in authoring mode only).

Business layer:

You can order the folder contents or business layer contents alphabetically. For relational databases only.

This option is also available as a setting in: [Preferences / IDT/Business Layer Editor](#) options

Sets - Sampling:

The tool can now provide sampling capabilities when sets retrieve data. This means you can restrict the volume of data that you first want to retrieve. This is useful when you want to study marketing segments for more efficient marketing campaigns.

What's new

Sets - Freeze Set:

You can freeze sets. When you freeze a set, it cannot be edited or manipulated. You can now tag specific Sets as references, so they can't be edited or built/purged any more. Only a change of name or description is allowed. This is useful when you want to create a reference and measure your return on investment on a strategy.

Sets - Complete Temporal Set Support:

You can declare Limited Temporal sets (fixed moving window of periods being built) with new temporal options and rollback. You can reset and rebuild your set history in a single operation.

Sets - Filtering improvements:

There are enhancements to filtering sets in the sets editor. You can also show Mandatory or Non Mandatory sets.

Sets - Limited Temporal Set Support:

You can now declare Limited Temporal sets (fixed moving window of periods being built) with new temporal options and rollback. You can now reset and rebuild your set history in a single operation.

Sets - Prompts Support in Temporal Sets:

Temporal sets now support prompts for reports. When the user runs a report, you can prompt the user to select the period for which the report will be generated.

Sets - Multi-key subject support:

You can declare multi-key subjects. Allow Subjects to use compound primary keys. This enables you to segment rdbms entities having compound keys.

Sets - Materialization:

You can now materialize your sets in a different schema. You can read data from your schema, and write Sets data to another schema. You must have the Set Designer profile/permissions to do this. This is useful to confine set data in a dedicated space that can be secure and independent of the production data.

Query Panel:

Query Panel: You can now include sets in the Query Panel step. Use any column of your database to build your segmentation and leverage existing sets with drag and drop.

Query Panel:

The Query Panel also supports prompts for set filters in the Query Panel step.

5.9 SAP BusinessObjects Analysis, edition for OLAP

HANA 2.0 Support

A new provider supports HANA 2.0.

HANA 2.0 supports multiple tenants and, Multi-tenant Database Containers become the standard operating mode in HANA 2.0 SPS 01.

Consequently, HANA 2.0 supports an extra parameter in connections: the tenant (or database name) and Analysis for OLAP now supports this new feature as well.

Selecting multiple hierarchy levels to show

Users can define all the hierarchy levels to show in an analysis in one go. They open a single dialog box, select the hierarchy levels to show, deselect the ones to hide, and close the dialog box after their selection is complete.

Drilling through with background filters

Users can drill through to the underlying relational data even when an analysis has one or more background filters.

When users drill through on a value, they can choose between drilling through to one of the following:

- Unfiltered underlying relational data
- Relational data filtered by the background filters

Viewing the drill-through results and context

In the *Drill Through* panel, users can see the number of rows included in the drill-through results and the drill-through context. They can show the context to check it and then hide it for a better view of the results.

As an administrator, you can define the maximum number of rows included in the results of a drill-through thanks to a new property in the the mdas.properties file.

Copying Cell Contents

Users can copy cell contents to paste them in another application by right-clicking the cell.

Editing conditional formatting

Users can edit the settings for conditional formatting rules. They can change the priority, operator, and values, as required.

Jumplink from one Analysis data-analysis document to another

In their Analysis workspace, users can now add a jumplink that targets another Analysis data-analysis document.

Note that, for the moment, answers to variables are not passed automatically from the source document to a target Analysis data-analysis document. Instead, when the target document contains a variable, users receive a prompt to enter or select the appropriate answer.

Auto-scroll to view or enter prompt values

When the *Prompts* dialog box cannot display all the prompts for a data source, the *Prompts Summary* allows users to scroll to the prompt that interests them. Now, they can also click the prompt to display the fields for the prompt in the Actions area of the dialog box, where they can provide or view the values.

New default name for Analysis components

By default, the name assigned to an Analysis component now takes the following form: "Analysis X – connection name" where X is an integer.

When this combination of characters, spaces, hyphens, and the integer exceeds 50 characters the name is truncated at the 50th character.

Users can rename the Analysis component within the 50-character limit.

Monitoring the use of data sources

With a new property bag in the CMS, as an administrator, you can determine the data sources used by each Analysis workspace. In the property bag, you can see the OLAP connections and the catalogs, cubes and queries referenced in an Analysis workspace.

5.10 SAP Crystal Reports

Support for Multi-Servers and Tenants for SAP HANA

SAP Crystal Reports for Enterprise supports tenants. Multiple servers are supported in case of SAP HANA failovers. If a host is not available, the driver chooses the next host from the list provided by the user. For more information, refer the *SAP Crystal Reports for Enterprise User Guide* available on the SAP Help Portal.

Improvements to the Fiorified BI Launch Pad History Page

You can now open multi-language instances from the Fiorified BI Launch Pad's History Page. Also, failed instances show the reason for failure in the [History Detail](#) page.

Support for Smart View in the Fiorified BI Launch Pad

The [Smart View](#) option in the CMC controls which document version (latest instance or the report itself) is displayed when you open a Crystal Report.

[Buy now](#) button in the evaluation copy of SAP Crystal Reports 2016

You can choose [Buy now](#) in the evaluation copy of SAP Crystal Reports 2016 and add SAP Crystal Reports 2016 directly to the shopping cart in the SAP Store.

5.11 SAP BusinessObjects Live Office

The following Web Intelligence features are now supported in SAP BusinessObjects Live Office:

- Web Intelligence report with referenced cells introduced in BI 4.2 SP3.
- Web Intelligence report part based on Query as a Web Service query.
- Web Intelligence new Chart types (gauges, tiles) and new chart options introduced in BI 4.2 SP4.

6 SAP BusinessObjects Business Intelligence Suite 4.2 SP6

6.1 SAP BusinessObjects Business Intelligence Platform

Following are the key new features in SAP BusinessObjects Business Intelligence Platform 4.2 SP6:

What's New in Business Intelligence Platform

- If the SSL Authentication is chosen as Server or Mutual while configuring LDAP authentication, then the BI platform supports TLS v1.2 secure protocol for communication with the LDAP server.

Note

For Windows systems, the default SSL communication is over TLS 1.2. For Linux systems, please refer to the SAP Note [2623529](#).

- You can check the *Number of Cores* in a machine, where the BI platform server is hosted.
- The BI platform supports OData services for the integration between the Fiori Launchpad and SAP Enterprise Portal.
- The BI Platform now supports OData Services in NetWeaver application server.
- With the 4.2 SP6 release of the SAP BusinessObjects Business Intelligence Platform, primary keys have been added to Oracle and Sybase ASE databases. The primary keys internally add up unique index to the corresponding tables:
 - CMS_INFOOBJECT7
 - CMS_SESSIONS7
 - CMS_LOCKS7
 - CMS_RELATIONS7

For more information, see SAP Note [2646873](#).

- **Configuring RESTful Web Services for WebSphere Server**
The BI platform architecture now supports both the WACS server and the WebSphere server for configuring and using RESTful Web service APIs. For information on configuring the WebSphere server for RESTful Web services, refer to the *Business Intelligence Platform RESTful Web Service Developer Guide* posted on the [BI Platform page of the SAP Help portal](#).
- You can now use WebSphere application server as SAML service provider.
- You now have the option to turn off the display of the GDPR disclaimer message for BI Platform web applications such as BI Launchpad, Fiori BI Launchpad, Central Management Console and Open Document.
- You can now view Lumira documents in BI Workspace.
- A new `SI_DATE` placeholder is available when scheduling a report and defining its name when exported.

What's New in Business Intelligence Platform Installation and Upgrade

- **ErrorsAndWarnings.log File Update to Contain a Guided Tree Navigation Link of KBA's as a Footnote:**
The simple text in ErrorAndWarnings.log file is replaced with a new text containing a hyperlink for the Guided Answers to find the top KBAs in SAP BI platform, including Install/Update/Deployment.

Note

The following text of the ErrorsAndWarnings.log file:


Refer SCN link and SAP Notes for DFO related Errors. Contact system administrator for other errors.

is replaced with,

For common install errors, refer Guided Answers - How to find TOP Knowledge Base Articles (KBAs) in SAP BI Platform (<https://gad5158842f.us2.hana.ondemand.com/dtp/viewer/#/tree/1851/actions/23941>) or contact system administrator.

- **Support for Adding Newly Introduced Languages During the BI Platform Update:**
In BI 4.2 SP06 release and above, you can now install newly introduced languages during the BI platform update instead of modifying the base installation after the update.
- **Support for Additional Special Characters in the CMS Administrator Password During Installation:**
Additional special characters are supported for CMS administrator password during installation of the BI platform in 4.2 SP06 and above.
- **Command-Line Option to Check Pre-requisites**
You can now use the new command-line switch parameter to perform stand-alone pre-requisite check for BI installation or update and decide if your BI Installations need to be interactive or automated.
- **Introducing ONE Installer Package**
ONE Installer is a single installation package that supports multiple BI installation scenarios such as, fresh installation of a Service Package or Patch, any Patch to Patch update, or any Service Package to Patch update. If you are new to SAP BusinessObjects BI Platform, then you can use ONE Installer package for fresh installation of the latest available Support Package or Patch version of the BI release.
Apart from the existing individual packaging types for fresh and update installation scenarios, this is a new packaging type introduced in 4.2 SP06 for both fresh and update installation scenarios. This package is shipped along with the existing packages.

What's New in Fiorified BI Launch Pad

- You can now remove an item from your list of *Favorites* by choosing the  icon on the item previously marked as favorite.
- You can now delete custom images you added to a category.

What's New in BI Administration Console

Automation Framework

-
- You can now save the values obtained from the *Output Parameter* of a task into a CSV file in the CMS using the *Save Output* standard task template.
 - The *Change Web Intelligence Source* standard task template now allows you to change the mapping of source universe for your list of documents from .unx to .unx and .unv to .bex.
 - You can now stop a scenario while the execution of the task is still in progress.
 - You can save the results of a scenario in PDF format using the *Export* option.
 - You can check the results of a scenario's previous executions using the *View History* option.

Integration of Visual Difference

- Visual difference application is now available in BI Administration Console.

6.2 SAP Crystal Reports for Enterprise

Support for User Function Libraries

Crystal Reports for Enterprise allows developers to create User Function Libraries (UFLs) that are recognized by the Formula Editor. A UFL is a library of functions that is created by a developer to address a specific need. The following UFLs are supported in this release:

- Java
- .NET
- COM

For more information, refer the User Function Libraries section in the *Crystal Reports for Enterprise User Guide*.

Support for Crystal Reports Read-Only (RPTR) export format

Crystal Reports Read-Only (RPTR) reports are reports that can be viewed with report viewer applications, but cannot be opened in Crystal Reports and in Crystal Reports for Enterprise designer. This enables you to protect your intellectual property by preventing users from modifying the report or obtaining information about proprietary business logic that is stored in the report definition.

For more information, refer the Export Format Types section in the *Crystal Reports for Enterprise User Guide*.

Additional Options in the TTX Export Format

In this format, the values are separated by tab characters; if you enable the Double quote string fields option, all string values are surrounded by double quotes (") and multi-line text objects are exported in a single line. TTX files can be opened in Microsoft Excel.

For more information, refer the Export Format Types section in the *Crystal Reports for Enterprise User Guide*.

UI5 based parameter prompting

Crystal Reports for Enterprise now uses a UI5 based parameter prompting that doesn't rely on Flash technology. End users can still use the original Flash based parameter prompting, in their BI Launchpad user preference page. This setting is user specific and doesn't other users.

6.3 SAP BusinessObjects Web Intelligence

Linking to other reports within the same document

To give immediate access to other reports within the same document, you can define hyperlinks that are called intra-document links.

Breaks - Amounts added into the break footer

When you insert a break, the break footer is now automatically filled with the appropriate amounts.

Applying security filtering when opening a document

When creating a document on a relational .unx universe with Business Security Profiles, you can specify that security on data is applied when opening the document without any need to perform a refresh. This saves time to all users of the document, namely for users who receive a document through the scheduling process.

New look and feel

The default Cascading Style Sheet (CSS) has been enhanced to provide a new look and feel to your documents. Tables now have headers with a grey background, the alternate colors property for rows has been removed, and the autofit property is disabled by default.

Charts also benefit from enhancements: they now have automatic titles, a new overlapping columns setting is available, the legend is no longer automatically displayed, a new palette has been added, and many more improvements.

Funnel and Pyramid charts

Represent different stages of your sale process and identify potential enhancements using funnel and pyramid charts.

Time dimensions

Drive time-based business analyses using time dimensions and customized calendars for personalized reporting.

Stored procedures

Relational .UNX universes now support stored procedures. This allows for better migration of Desktop Intelligence documents.

Refresh options

Select the data providers you want to refresh when refreshing a document.

New PageInSection() function

Use the new PageInSection() to return a page number in a specific section.

.CSV and .TXT as data source

You can now use .CSV and .TXT files as data sources in the HTML client.


Export to PDF with bookmarks

Export your documents to PDF and leverage bookmarks to facilitate their navigation using the new [Display Bookmarks](#) option.

6.4 SAP BusinessObjects Web Intelligence Interactive Viewer

In-App Help


A new in-app help framework provides you with an integrated context-sensitive help to access information without

leaving the application and interrupting your workflow. Click the  icon when viewing a Web Intelligence document to access the new in-app help.

Depending on your company's proxy configuration, you might need to configure your system first for the in-app help to work.

New options menu

The previous Standard and Advanced modes have been harmonized, and all the data manipulation options are

now grouped in the new  menu. You now enable or disable ranking, sorting, folding and drilling using checkboxes directly from this menu.

Drilling

You can now enable or disable drill directly in the Interactive Viewer without having to switch back to Web Intelligence legacy clients.

Auto-Refresh mode

Refresh your documents automatically and use them as dashboards using the new Auto-Refresh mode feature.

Time dimensions

Consume time dimensions introduced in Web Intelligence legacy clients for better time-based analysis and reporting.

Chart animations

New chart animations give life to your documents and are ideal for documents that you want to demo.

Customization

Customize the Interactive Viewer interface like other Web Intelligence clients in the Central Management Console.

6.5 Data Access

New data source support for 4.2 SP6.

The following database connections are now supported:

- HIVE 2.3
- Azure SQL Data Warehouse
- SQL Server 2017
- HANA2 SPS02
- IQ 16.1
- Teradata 16.20

6.6 The Information Design Tool

The following new features and enhancements are available in the 4.2 SP6 release of the information design tool:

Information Design Tool features

What's new

You can now use database stored procedures to create relational universes. You can also use database stored procedures to create business objects in the data foundation and in the business layer of your relational universes.

You can also convert stored procedures universes from UNV to UNX.

When retrieving a universe, can now create a new local project on the fly.

What's new

The following dialog boxes can now be expanded to full screen:

- SQL Expression Editor (from SELECT, WHERE objects clause...)
- Data Security Profile
- Business Security Profile

New options are available in the Find/Replace dialog box when searching in the active data foundation or business layer.

In the data foundation and business layer editors, a new Filter dialog box gives you more criteria to filter the data foundation or business layer content.

In the data foundation, business layer, sets and groups editors, filter options have been added, making it easier to filter out elements.

Table arrangement: You can now align selected tables vertically or horizontally in the data foundation editor.

A new command allows you to quickly switch the table display from Collapsed, Joins only to Expanded. This command can be called from the Ctrl-T shortcut.

In the data foundation editor, you can now click anywhere in a table (column or table header) to insert a calculated column.

In the data foundation editor, you can now include derived tables and columns of derived tables in lists of values.

When right-clicking a data foundation view, new commands in the contextual menu allows you to go directly to another view or insert a new one.

When you insert alias tables in the data foundation editor, you can now choose to duplicate the joins of the selected tables.

In the data foundation editor, you can now choose the tables that you want to refresh rather than refreshing the whole data foundation. This can greatly reduce the refresh time.

New default settings:

- When you open a data foundation file, the last edited View will be displayed.
- When you retrieve a Universe, the Universe name is prefixed by the folder name.

When defining a list of values based on SQL, inserting a derived table automatically adds the @DerivedTable function.

Aggregate navigation in the business layer editor has been improved. You can now filter tables by characteristics, and you can filter objects by characteristics when configuring aggregate navigation for a business layer.

You can select the font for the script editors. This is set in the [Preferences](#) dialog.

When setting aggregate awareness in the business layer editor, filter options have been added making it easier to filter out tables and objects when you detect incompatible objects.

In the business layer editor, you can now duplicate selected folders or business objects.

The user interface to edit static list of values has been simplified.

Business layer/SQL definition/associated Tables management is improved.

Sets-specific features

What's new
You can now provide scoring for members in sets in order to determine potential for different set members.
Sets now support the following databases: <ul style="list-style-type: none">• DB2• Sybase• Teradata• Vertica• MySQL
You can now right-click on a set and view the materialization of the set (the SQL for the set as it is written in the database).
You can use custom SQL in Query Panel set steps.
You can edit all table names of a set container after it is published.
You can now display associated membership values (if any) in the Sets pane.
You can filter sets and objects via the Filtering Objects button in the side panel.

6.7 SAP BusinessObjects Live Office

The following Web Intelligence features are now supported in SAP BusinessObjects Live Office:

- New option to support exporting Web Intelligence table or cell with background image as a picture in PowerPoint.
- New option to support Web Intelligence comments in Excel.
- Support maximizing the Live Office insert wizard window.

6.8 SAP BusinessObjects Mobile Server

SAML 2.0 Authentication for SAP BI Mobile Application

SAP Business Objects Platform supports SAML 2.0 as an authentication mechanism for single-sign-on experience. Now, you can enable the end to end SAML 2.0 authentication mechanism from SAP BI Mobile Application. For more information, refer to *Mobile server Deployment and Configuration Guide*.

6.9 SAP Crystal Reports 2016



Integration with SAP GUI 7.50

Crystal Reports 2016 SP06 SAP Toolbar can now be used with SAP GUI 7.50. Refer to [SAP Note 2574135](#) for more details, e.g. required SAP GUI 7.50 and BI Add-on patch levels. Note that SAP GUI 7.40 and lower versions are no longer supported since Crystal Reports 2016 SP06.

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