PUBLIC
SAP Analysis for Microsoft Office
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Administrator Guide

THE BEST RUN SAP

Content

1 Getting Started

1.1 What is SAP Analysis for Microsoft Office?

SAP Analysis for Microsoft Office, is a Microsoft Office Add-In that allows multidimensional analysis of OLAP sources. It consists of the following components:

- Analysis Add-in including the Analysis plug-in and the Business Planning and Consolidation plug-in
- Enterprise Performance Management Add-in

The add-ins include versions for Microsoft Excel and Microsoft PowerPoint. They can be installed in one common installation. After the installation, the Analysis plug-in and the Enterprise Performance Management (EPM) add-in are available as separate tabs in the ribbon. The Business Planning and Consolidation plug-in is available in the interface as a pane named *Activity*.

In the Analysis for Microsoft Excel, you can use the add-ins in one workbook.

In Analysis for Microsoft PowerPoint, you can add data sources with the add-ins into one presentation and define the analysis with the respective plug-in.

The Business Planning and Consolidation plug-in pane can be displayed in the Ribbon: Analysis.

More Information

For more information on the Analysis add-in (and its plug-ins), see the SAP Help Portal at SAP Analysis for Microsoft Office.

For more information on the EPM add-in, see the SAP Help Portal at SAP EPM solutions, add-in for Microsoft Office.

1.2 Introduction to the Analysis Plug-in

The Analysis plug-in allows multidimensional analysis of OLAP sources in Microsoft Excel, MS Excel workbook application design, and intuitive creation of BI presentations with MS PowerPoint. The Plug-in is available for the following Microsoft Office versions:

- Office 365 (Excel and PowerPoint)
- Microsoft Office 2019 (Excel and PowerPoint)
- Microsoft Office 2016 (Excel and PowerPoint)
- Microsoft Office 2013 (Excel and PowerPoint)

In Microsoft Excel, Analysis is available in two separate tabs in the ribbon: *Analysis* and *Analysis Design*. In Microsoft PowerPoint, it is available in one tab: *Analysis*.

In the Analysis plug-in, you can use SAP BW data sources from the BI platform or from a BW system, SAP Analytics Cloud models and SAP HANA data sources. The data is displayed in the workbook in crosstabs. You can insert multiple crosstabs in a workbook with data from different sources and systems. If the workbook will be used by different users, it is also helpful to add info fields with information on the data source and filter status.

Using the design panel, you can analyze the data and change the view on the displayed data. You can add and remove dimensions and measures to be displayed easily with drag and drop. To avoid single refreshes after each step, you can pause the refresh to build a crosstab. After ending the pause, all changes are applied at once.

You can refine your analysis using conditional formatting, filter, prompting, calculations and display hierarchies. You can also add charts to your analysis. If you want to keep a status of your navigation, you can save it as an analysis view. Other users can then reuse your analysis.

For more sophisticated workbook design, the Analysis plug-in contains a dedicated set of functions in Microsoft Excel to access data and meta data of connected systems. There are also a number of API functions available that you can use with the Visual Basic Editor, to filter data and set values for variables.

You can also plan business data based on the current data in your data source. You can enter the planning data manually and you can enter planning data automatically using planning functions and planning sequences of SAP BW Integrated Planning.

The Analysis plug-in, must be installed on your local machine. You can connect directly to a SAP BW system or you can connect via a platform to include data sources. You can use the following platforms to store and share workbooks and presentations: SAP BusinessObjects business intelligence platform and SAP BW (SAP BW/4HANA).

> **i Note**
>
> Microsoft Office documents contain free text fields. These text fields are not intended to store personal data without additional technical or organizational measures to safeguard data protection and privacy.
>
> In order to ensure that analytical data which is personal data and which is retrieved from the servers with Analysis functionality, does not get stored in documents, the Analysis workbook property *Remove Data Before Saving* can be active in those workbooks.

Using the business intelligence platform enables you to save workbooks and presentations with their navigation state in a central management system and to reuse these analysis views in other applications such as SAP Crystal Reports or Analysis, OLAP edition.

To get a first impression of the look and feel of the Plug-in, you can have a look at the Analysis eLearning tutorials. They are available in the SAP Community Network at http://scn.sap.com/docs/DOC-7679.

1.3 Introduction to the Business Planning and Consolidation Plug-in (BPC plug-in)

The BPC plug-in is a component to SAP Analysis for Microsoft Office, as of version 2.3.

The plug-in allows to execute the Microsoft Excel or PowerPoint-related tasks for the activities defined on the web client of SAP Business Planning and Consolidation, as part of the Business Process Flows feature.

> **i** Note
>
> The plug-in supports only SAP Business Planning and Consolidation 10.1 Support Package 10, version for SAP NetWeaver or higher.

BPC Plug-in Interface Areas

The plug-in is available in the interface as a pane named *Activity*. This pane can be displayed in the Ribbon tab *Analysis*.

1.4 About this Guide

1.4.1 About the documentation set

The documentation set for SAP Analysis for Microsoft Office, comprises the following guides and online help products:

> → Tip
>
> The guides and tutorials are regulary updated and enhanced. Make sure that you have the latest version by checking the SAP Help Portal and SAP Community Network on a regular basis.

Administrator Guide

The Administrator Guide contains detailed information that a user needs to install, configure and administer Analysis for Microsoft Office. The guide is available on the SAP Help Portal.

User Guide

The User Guide contains the conceptual information, procedures and reference material that a user needs to create and analyze Microsoft Excel workbooks and Microsoft PowerPoint slides with Analysis for Microsoft Office. There are three user guides for Analysis: the Analysis Plug-in User Guide, the BPC Plug-in User Guide and the EPM Add-in User Guide. The guides are available on the SAP Help Portal.

Online Help

The online help contains the same information as the User Guides. It links directly to the documents on the SAP Help Portal.

What's New Guide

The What's New guide for SAP Analysis for Microsoft Office, provides a complete list of the new and modified features for SAP Analysis since the previous release. The guide is available on the SAP Help Portal.

eLearning Tutorials

The tutorials show you how to use SAP Analysis. They give you a quick introduction to different features so that you can learn the basics of working with the Add-In. They also give you a first impression of the look and feel. The tutorials are available in the SAP Community Network at http://scn.sap.com/docs/DOC-7679?refer=product-help.

2 Installation

2.1 System Requirements

Before installing Analysis, ensure that the following components are installed on the local machines:

- Office 365, Microsoft Office 2019, Microsoft Office 2016, or Microsoft Office 2013 (Excel and PowerPoint)
- Microsoft Visual Studio 2010 Tools for Office Runtime (VSTO2010 runtime)
  Microsoft confirmed that VSTO runtime will be supported according to the lifetime of the parent product. For more information, see the SAP Knowledge Base Article 3129468
- Microsoft .NET Framework 4.7.2 Redistributable Package
  If you use the SAP BusinessObjects Business Intelligence 4.2 platform or a higher version with Analysis, Microsoft .NET Framework 4.7.2 or higher must be installed on the client PC.
  Please note: If you want to install and use the Enterprise Performance Management add-in with Analysis, Microsoft .NET Framework 4.7.2 or higher must be installed on the client PC.

> **i** Note
>
> During installation, the Analysis setup checks whether Microsoft .NET Framework 4.7.2 is installed on the PC. If not, it provides a link to download this software. The Analysis setup also checks whether Primary Interop Assemblies are installed. If not, the setup installs this component automatically.

A list of all supported operating systems for SAP Analysis for Microsoft Office, is available in the Product Availability Matrix on SAP Support Portal at http://support.sap.com/pam where you can enter **SBOP ANALYSIS OFFICE** into the search box and choose the *Search in PAM* button to retrieve the information.

As data sources Analysis takes the data from a BW system of SAP NetWeaver 7.0 or higher releases, from a BW/4HANA system, from a SAP HANA system and from SAP Analytics Cloud models.

Before users can begin working with Analysis, you have to create at least one connection object to a data source system/platform. For more information about the platforms, see the corresponding guides on SAP Help Portal at http://help.sap.com.

Related Information

To install SAP Analysis for Microsoft Office [page 11]
To install the Analysis BI platform Add-On for Scheduling for the Analysis Plug-in [page 14]
Supported BI Platforms [page 117]

2.2 To install SAP Analysis for Microsoft Office

Context

Analysis is a component of the SAP Front End installation. You can install Analysis centrally from an installation server or locally from a distribution medium such as DVD.

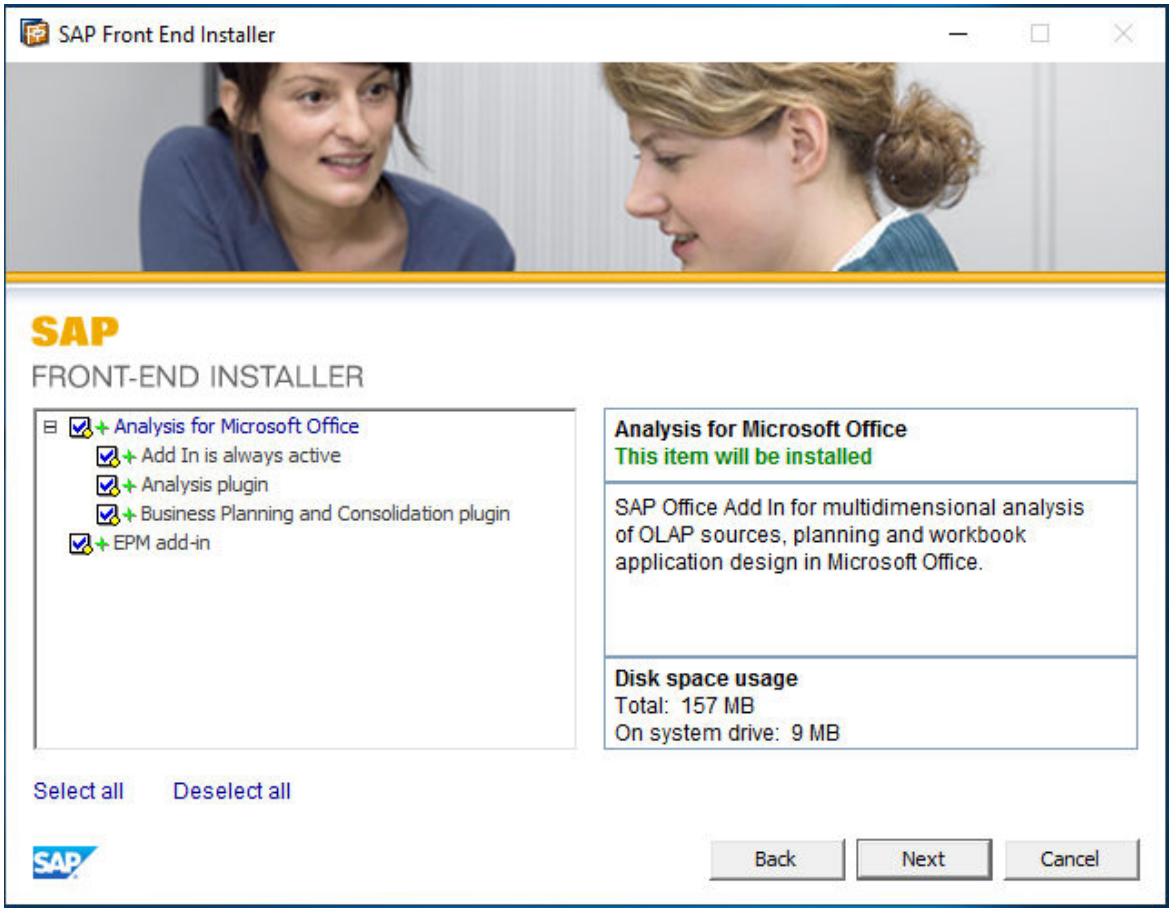
To install SAP Front End, follow the instructions in the installation steps under “Installation of the SAP Front End” in the *SAP Front End Installation Guide* on the SAP Help Portal.

For Microsoft Office 2013, Microsoft Office 2016, Microsoft Office 2019 and Office 365, Analysis consists of the following installable components:

- Analysis Add-in including the Analysis plug-in and the Business Planning and Consolidation plug-in
- Enterprise Performance Management Add-in
  The EPM add-in installed with Analysis 2.8 SP14 corresponds to the stand-alone version EPM add-in SP38 patch 10.

Procedure

1. Start the installer file (.exe).
   The SAP Front-End Installer wizard appears.
2. Select *Next >*.
3. Select the components you want to install, in the component list of the *SAP Front End Installer* dialog box:



- Select *Analysis for Microsoft Office* if you want to install all its components:
  - With *Add In is always active*, the Add-in is always enabled when you open Microsoft Excel or PowerPoint (load behavior 3).
  - *Analysis plugin* to install the Analysis plug-in.
  - *Business Planning and Consolidation plugin* to install the BPC plug-in.

  You can also select and install single components of Analysis for Microsoft Office. Note that the component *Analysis plugin* must always be selected to install one of the other two components.
- Select *EPM add-in*, to install the Enterprise Performance Management add-in.

4. Choose *Next*.
   The SAP Front End Installer prompts you to confirm or change the target directory for Analysis.

> **i Note**
>
> The default path is `C:\Program Files\SAP BusinessObjects\Office AddIn`.

5. If necessary, change the target directory and choose *Next* to start the installation.
6. In the confirmation screen, choose *Done*.

Results

The selected components of Analysis for Microsoft Office have now been installed and are ready to use in Microsoft Excel and PowerPoint.

> **i** Note
>
> Before users can access Analysis in any Microsoft Excel or Microsoft PowerPoint file, ensure that Analysis has been started once directly in the Windows directory or by choosing the desktop icons.

For more information on the Analysis add-in (and its plug-ins), see the SAP Help Portal at SAP Analysis for Microsoft Office.

For more information on the EPM add-in, see the SAP Help Portal at SAP EPM solutions, add-in for Microsoft Office.

Related Information

To configure the load behavior of the Analysis Add-In [page 123]

2.2.1 Parallel installation of Analysis and other SAP Add-Ins

If the client PCs have other SAP Add-Ins installed like the SAP Business Explorer, be aware of the following:

- It is possible to install the other Add-Ins and SAP Analysis for Microsoft Office on one machine.
- Parallel activation of other Microsoft Excel SAP Add-Ins and Analysis, is not supported. For example, users cannot work with a Business Explorer Analyzer workbook and an Analysis workbook in parallel in the same Microsoft Excel application. Only one of these Microsoft Excel Add-Ins can be active at any one time.

You can configure the Analysis Add-In Launcher to define the starting behavior of Analysis.

Related Information

Configuring the Analysis Add-In Launcher [page 124]

2.3 To install the Analysis BI platform Add-On for Scheduling for the Analysis Plug-in

Context

After the installation of the Analysis BI platform Add-On, you can schedule Analysis workbooks in the BI Launch Pad and the Central Management Console.

The following prerequisites must be met for the installation:

- Administrative rights
- Microsoft .NET Framework 4.7.2 or or a higher version
- BI platform 4.2 SP0 or a higher version
- Workbooks saved on BI platform with file format .xlsx or .xlsm.
- 64-bit operating system
- Adaptive Job Server is installed

Procedure

1. Download the BI platform Add-On from SAP Support Portal at http://support.sap.com/swdc.
2. Log on to BIP node on Windows (with admin rights).
3. Execute setup.exe.

   The installer checks if the prerequisites are met.
4. Select the setup language.
5. Accept the destination folder.

   The folder is entered automatically and cannot be changed. The Add-On must be installed in the BusinessObjects folder in the Windows explorer.
6. Select *Full Installation* for Scheduling Service.
7. Log on to BI platform as administrator.
8. After the installation, go to the CMC and choose *Servers* > *Core Services*.
9. Select *Properties* in the context menu of the Adaptive Job Server.
10. In the section *Analysis Scheduling Service*, enter the path to the BI platform Add-On installation.

    For example: C:\Program Files (x86)\SAP BusinessObjects\Analysis Precalculation\BiPrecalculation.exe
11. Select *Restart Server* in the context menu of the Adaptive Job Server.

Results

You can now schedule Analysis workbooks stored on BI platform.

Note that the connection to BI platform and BW / HANA system must be configured as SSO to schedule an Analysis workbook.

2.4 To uninstall SAP Analysis for Microsoft Office

Prerequisites

Before uninstalling, make sure that Analysis is not running.

Procedure

1. In the Windows Control Panel, choose *Add or Remove Programs*.
   A list of installed applications appears.
2. Select *Analysis for Microsoft Office*.
   The *SAP Front End Installer* dialog box appears.
3. Choose *Next*.
4. In the confirmation screen, choose *Done*.

Results

Analysis for Microsoft Office is uninstalled and a log file generated.

> **i** Note
>
> The installation and uninstallation of Analysis is done on local machine level. Therefore, nothing is uninstalled on user level. This might cause an error message when a user starts Microsoft Excel for the first time after uninstalling Analysis. This message can be clicked away and will not occur anymore.
>
> For more information, see SAP Note 2279792.

3 Settings

Context

You can specify settings for the Analysis Add-in and the Analysis Plug-in. The settings can be predefined for individual users or user groups as default settings.

The settings are stored in the file system of the client PCs.

In former releases (1.x), the settings were specified in the registry. The registry settings cannot be migrated to the file system and have to be specified in the file system again.

Results

You set the default values of the Analysis settings for the users. Users can change the default settings, if required.

Related Information

Maintaining settings in the file system [page 16]
Maintaining settings in Analysis [page 17]
Settings for the Analysis Add-in [page 19]
Settings for the Analysis Plug-in [page 28]
Settings for the BPC Plug-in [page 115]
Configuring Files with SAP Setup [page 115]

3.1 Maintaining settings in the file system

Context

The Analysis specific settings are stored in the file system. You can change existing settings in the file system of the client PC.

As an administrator, you maintain the settings in three files: *Cof_app.config* and *Ao_app.config*. The files are located in the file system under `C:\ProgramData\SAP\Cof`. In these files, you can also define if a user has the rights to change a setting locally.

Note: If you change settings under `C:\ProgramData\SAP\Cof`, these changes might be lost when you install a new version of Analysis. Therefore we recommend that you save the file with the changed settings in a different folder. After installing the new version, you can then reuse the saved file.

As a user, you can change the settings in the file system under `Users\<UserID>\AppData\Roaming\SAP\Cof`. The file names for changing the settings are *cof_user_roaming.config* and *ao_user_roaming.config*. These files are created automatically if you change a setting in the settings dialog. You can also create the files manually.

Procedure

1. Open the file system.
2. Navigate to the folder `C:\ProgramData\SAP\Cof` and open the file where you want to change the setting.
3. Navigate to the setting you want to edit and make the required changes. To be able to change settings in these files, you need admin rights.

   The settings are maintained in the settings list below the *configSections* area.
4. Define if a user should be able to change a setting locally.

   In the configSections area, each setting has a configuration level defined. The default level is `UserRoaming`. This means that a user change the setting locally.

   If you change the configuration level to `PerMachine`, the setting can no longer be changed by a user locally.
5. Maintain a setting locally.

   Navigate to the folder `Users\<UserID>\AppData\Roaming\SAP\Cof` and open the file where you want to change the setting.

   If the setting is not already available in the file, you can copy it from the files under `C:\ProgramData\SAP\Cof`.

Results

The Analysis settings are modified according to your changes. The changed values are availabe in the corresponding files in the file system and in the *Technical Configuration* dialog in the Analysis backstage area.

3.2 Maintaining settings in Analysis

Besides maintaining settings directly in the file system, you can modify settings in the Analysis backstage area.

1. Open the *Technical Configuration* dialog.

   Select *File* > *Analysis* > *Adapt Analysis* > *Technical Configuration*.
   While the dialog with all settings is loaded, you can already start the search for a specific setting and enter the setting name in the search field.

2. Display the settings you want to modify.
   You have the following options:
   - Enter a setting name in the search field.
     The search is executed immediately and the settings are displayed accordingly.
   - Select the configuration file prefix:
     Ao for the Analysis plug-in, *Bpc* for the BPC plug-in and *Cof* for the Analysis Add-in.
     The setting are displayed according to their assignment in the file system.
3. Specify the settings to be displayed.
   You have the following options:
   - *All Settings*
     All settings are displayed.
   - *All Settings Deviating from Default Value*
     The settings that have already been modified are displayed.
   - *All Settings Containing a Value in File*
     All settings that contain a value in the corresponding file (e.g. Ao_app.config) are displayed.
4. Modify a setting.
   Change the default value for the setting. Depending on the type, you can select the check box for boolean values, enter an integer value or enter a text.
   In the details view, you get the following information per setting:
   - *Type:*
     The type can be *Bool* for boolean values, *Int32* for integer value or *String* for texts.
     For boolean values, the value is *True* if the check box is selected.
   - *Default:*
     The default value for the setting is displayed.
   - *Publish:*
     The value is always *True*. This means that the setting is public.
   - *Loaded From:*
     The path to the configuration file in the file system is displayed.
   - *Allowed Configuration Level:*
     The configuration level can be *UserRoaming* or *PerMachine*.
     A user can change settings with configuration level *UserRoaming*. The changed settings are stored in the file system under `Users\<UserID>\AppData\Roaming\SAP\Cof`. The file names for the changed settings are *cof_user_roaming.config*, *ao_user_roaming.config* and *bpc_user_roaming.config*. These files are created automatically if you change a setting in the *Technical Configuration* dialog.
     An administrator can also change settings with configuration level *PerMachine*. The changed settings are stored in the file system under `C:\ProgramData\SAP\Cof`. The file names are *Cof_app.config*, *Ao_app.config* and *Bpc_app.config*.
     As an administrator, you can also change the configuration level from *UserRoaming* to *PerMachine* for any setting. Then, these settings can no longer be changed by a user.
   - *Config Prefix:*
     The prefix of the corresponding configuration file is displayed. The prefix can be *Ao* for the Analysis plug-in, *Bpc* for the BPC plug-in and *Cof* for the Analysis Add-in.
5. Press *OK*.
   The changed setting values are executed.

The Analysis settings are modified according to your changes. The changed values are availabe in the *Technical Configuration* dialog and in the corresponding files in the file system.

3.3 Settings for the Analysis Add-in

The following table describes the Analysis Add-in file system settings that you can define. The settings are delivered in the `Cof_app.config` file.

For more information about maintaining file system settings, see Maintaining settings in the file system [page 16]

AppBuilderConfiguration

Setting and Setting Values	Setting Description
`AppBuilderCompanyProfileDirectory= "C:\ProgramData\SAP\Cof\User Interface"` (default value)	You use this setting to specify the path to the directory which contains the company profiles. The default value is `C:\ProgramData\SAP\Cof\User Interface`. The company profiles are owned by an administrator. The current user is not the owner of these profiles and he won't be able to modify them. This setting can only be maintained by an administrator in the file system under `C:\ProgramData\SAP\Cof`.
`AppBuilderDefaultInterfaceArea= ""` (default value), `ContextMenu`, `Backstage` or `SidePanel`	You use this setting to specify which user interface area is selected when you open the Customer User Interface dialog. After the installation, the default value is empty (""). This means that the user interface area Ribbon is selected when you open the dialog. You can enter `ContextMenu` to enable the user interface area Context Menu when you open the dialog, `Backstage` to enable the user interface area File Menu, and `SidePanel` to enable the user interface area SidePanel View. Note that when you close the dialog, the currently active user interface area is saved as value in the setting. Therefore, the next time you open the dialog again, the same interface area is enabled.

Setting and Setting Values	Setting Description
`AppBuilderDefaultProfilePath= ""` (default value)	You use this setting to specify the path to the default profile that will be applied when Microsoft Excel is started. The path is set automatically as soon as a user defines a profile in the *Customize User Interface* dialog and then selects the *Default Profile* button. After the installation, no path is defined. Therefore the default value is empty (""). We do not recommend to change the path manually.
`AppBuilderExcelDefaultCompanyProfilePath = ""` (default value)	You can use this setting to specify the path to the company profile for Microsoft Excel. After the installation no path is defined. Therefore the default value is empty (""). As an administrator, you can enter the path to the default company profile and provide it to your end-users.
`AppBuilderPptDefaultCompanyProfilePath= ""` (default value)	You can use this setting to specify the path to the company profile for Microsoft PowerPoint. After the installation no path is defined. Therefore the default value is empty (""). As an administrator, you can enter the path to the default company profile and provide it to your end-users.
`AppBuilderPptDefaultProfilePath= ""` (default value)	You use this setting to specify the path to the default profile that will be applied when Microsoft PowerPoint is started. The path is set automatically as soon as a user defines a profile in the *Customize User Interface* dialog and then selects the *Default Profile* button. After the installation no path is defined. Therefore the default value is empty (""). We do not recommend to change the path manually.
`AppBuilderReadOnlyProfileDirectories= "path1;path2"`	You use this setting to specify a directory or a list of directories where users can share profiles without having to make a copy. You can enter a single path to a directory or paths to several directories. The paths should then be entered with a semicolon-separated list. The current user is not the owner of these profiles and he won't be able to modify them.

Setting and Setting Values	Setting Description
`AppBuilderUserProfileDirectory`= `""` (default value)	You use this setting to specify the path to the directory which contains the current user profiles. The current user is the owner of these profiles and can modify them. Each time, the user creates a new profile in the *Customize User Interface* dialog, it will be stored in this directory. After the installation no directory is defined. Therefore the default value is empty (""). As soon as a user saves the first profile, the path to the directory is set automatically- The path will be something like: `C:\Users\<userID>\AppData\Roaming\SAP\Cof\User Interface`. A user can change the path manually to use another specific folder.
`AppBuilderWindowHeight`= `-1` (default value)	You use this setting to define the height of the *Customize User Interface* dialog. The default value is -1 points. The value is automatically adapted if a user resizes the height of the dialog manually in the application.
`AppBuilderWindowWidth`= `900` (default value)	You use this setting to define the width of the *Customize User Interface* dialog. The default value is 900 points. The value is automatically adapted if a user resizes the width of the dialog manually in the application.
`CanCustomizeUserInterface`= `true`(default value) or `false`	You use this setting to specify whether users are authorized to customize the user interface and define their own profiles. After installation, the default value is `True`. This means that are authorized to customize the user interface. If you change the parameter value to `False`, are no longer able to customize the user interface.

ConnectionConfiguration

Setting and Setting Values	Setting Description
`DefaultConnectionLimit`= `10` or any integer value	You use a workbook with several SAP HANA data sources. When refreshing the workbook, a thread is created for each data source for retrieving the result set via HTTP (Note that the number of parallel threads might be limited by the Analysis setting MaxNumberOfParallelThreads). Due to a limitation in the underlying .net framework, the SAP HANA server gets at most two HTTP requests in parallel. You use this setting to overwrite the .net default value and specify The default value is 10. This means that Analysis can get up to 10 HTTP requests in parallel. You can enter any integer value for this setting.

ConnectionServiceConfiguration

Setting and Setting Values	Setting Description
`CpicTraceLevel`= `0` (default value), `1`, `2` or `3`	This setting can be used for SAP error handling. Common Programming Interface - Communication (CPIC) is the communication layer under JRFC (or JCo). You use this setting to specify the desired level for tracing. The default value is `0`. This means no tracing takes place. You can change the parameter value to `1`, `2` or `3`, where 3 is the highest and most detailed level of tracing. If you now work with Analysis, log files will be created in the %temp% folder of windows. There you can find a nco_cpic_XXX.trc file that you can attach to the message.
`CurrentCodePage`= Encoding for the system's current code page	In some cases, the Open dialog shows system entries with unreadable characters when using saplogon.ini. This can be caused by the fact that the encoding of the saplogon.ini content is different from Windows default encoding. You use this setting to overrule the default code page by applying the appropriate code page number here.

Setting and Setting Values	Setting Description
`EnableIncludesInSapUiLandscapeXml`= `True` or `False` (default value)	You use this setting to specify whether includes in SapUiLandscape.xml files are loaded and parsed. The default value is `False`. This means that includes in SapUiLandscape.xml files are not loaded and parsed. If you change the parameter value to `True`, includes in SapUiLandscape.xml files will be loaded and parsed. Note that setting this setting to true may have a negative performance impact since includes from remote locations will be loaded. Please be aware that nested includes (for example, includes in an included file) are not supported.
`NcoTraceLevel`= `0` (default value), `1`, `2`, `3`or `4`	This setting can be used for SAP error handling. Analysis uses the .Net connector (NCO) for calling ABAP RFCs from client. NCO supports logging of RFC traces. You use this setting to specify the desired level for tracing. The default value is `0`. This means no tracing takes place. You can change the parameter value to `1`, `2`, `3`or `4`. If you now work with Analysis, log files will be created according to the selected level in the %temp% folder of windows. There you can find a dev_nco_rfc.log file and a number of files "nco_rfc_XXXX_Y.trc". Additionally, there is the Analysis log file "SAPAdvancedAnalysisXLS.log". You can zip all of them to attach them to the message.
`NwbcTicketIssuerPath`= `/sap/bc/nwbc/TicketIss`uer	This setting defines the standard path to the SAP NetWeaver Business Client ticket issuer on the server. The default value is `/sap/bc/nwbc/TicketIss`. We do not recommend to change the path manually.
`SapWebGuiPath`= `/sap/bc/gui/sap/its/webgui`	This setting defines the standard path to the SAP Web GUI on the server. The default value is `/sap/bc/gui/sap/its/webgui`. We do not recommend to change the path manually.

Setting and Setting Values	Setting Description
`UseUnicodeCodepageInNco`= `True` or `False` (default value)	You use this setting to specify whether a password for an ABAP system may contain special characters such as €. The default value is `False`. This means that special character ares not supported. If you change the parameter value to `True`, special characters are supported. You should only set the setting to `True` if all your ABAP systems use UniCode.

DPPConfiguration

Setting and Setting Values	Setting Description
`DPPPopup_enforce`= `1` (default value) or any integer value	You use this setting to specify whether the data protection and privacy pop-up should be displayed when Analysis is started. The data protection pop-up will be displayed when starting Analysis as long as the value for this setting is higher than the value for setting `DPPPopup_shown`. Therefore, you can also re-enforce that the pop-up is displayed with setting the value for this setting to a higher value than `DPPPopup_shown`. The default value is `1`. This means that the pop-up will be displayed as the default value for `DPPPopup_shown` is `0`. For more information on Data Protection and Pricacy, see Introduction [page 179].

Setting and Setting Values	Setting Description
`DPPPopup_shown`= `0` (default value) or any integer value	You use this setting to specify whether the data protection and privacy pop-up should be displayed again when Analysis is started. The data protection pop-up will be displayed again when starting Analysis as long as the value for this setting is lower than the value for setting `DPPPopup_enforce`. Therefore, you can also re-enforce that the pop-up is displayed with setting the value for this setting to a lower value than `DPPPopup_enforce`. The default value is `0`. This means that the pop-up will be displayed as the default value for `DPPPopup_enforce` is `1`. If you select the check box *Do not show again* in the pop-up, the value is set to `1` and the pop-up will not be displayed when starting Analysis the next time as both settings have the same value.

LocaleConfiguration

Setting and Setting Values	Setting Description
`ClientLanguage`= `EN` or any Analysis language value	You use this setting to specify the language for all Analysis UI texts. The default value is EN. This means that the UI texts will be displayed in English. You can enter any Analysis language value for this setting. For more information on available languages and their values, please see Supported languages [page 173] Note that the setting DetermineClientLanguageFromOfficeLanguage overrules this setting as long as it has the value true.

Setting and Setting Values	Setting Description
`DetermineClientLanguageFromOfficeLanguage`= `true`(default value) or `false`	You use this setting to specify whether the Microsoft Office language should determine the language for Analysis. This setting overrules the setting ClientLanguage. The default value is `True`. This means that the Microsoft Office language determines the language used for Analysis. If you enter a different language value for the setting ClientLanguage, the Analysis texts are still displayed in your selected Microsoft Office language. If you change the parameter value to FALSE, the Microsoft Office language no longer determines the language used for Analysis texts. If you enter a different language value for the setting ClientLanguage, the Analysis texts are displayed in the language specified in setting ClientLanguage.

OfficeConfiguration

Setting and Setting Values	Setting Description
`SupportEmbeddedMode`= `True` or `False` (default value)	You use this setting to specify whether the Analysis Add-in should be supported when the Microsoft Office tools are running in embedded mode (also called automated mode). The default value is `False`. This means that the Analysis Add-in is not supported. If you change the parameter value to `True`, the Analysis Add-in will be supported. If you set the setting to `True`, you can disable the Analysis Plug-in using the setting `SupportAutomatedOffice`in the `Ao_app.config` file. **i Note** Microsoft does not support Add-ins if the MS Office tool is running in embedded mode. This is the case if the tool is embedded into a hosting window, for example in another MS Office tool or ABAP GUI, or when the MS Office tool is started with `excel.exe -Embedding` by Windows. We do not recommend changing this setting because in many scenarios, for example if the tool is embedded in a hosting window, some issues can occur which cannot be resolved.

SupportConfiguration

Setting and Setting Values	Setting Description
`clientProfiling`= `true` or `false` (default value)	You use this setting to activate client profiling. After installation, the default value is `False`. With a value of `True`, you can activate this setting. You can also activate the setting in the Support Settings dialog with setting *Enable Client Profiling*. For more information, see Troubleshooting in Analysis [page 185].
`InsertCopiedProfilingResultsToNewSheet`= `true`(default value) or `false`	You use this setting to specify whether the client profiling statistics can be copied to a new workbook. The default value is `True`. This means that you can choose the option *Copy to a New Workbook* in the *Client Profiling Statistics* dialog. If you change the parameter value to `False`, it is no longer possible to copy the profiling statistics to a new workbook.

TraceLogConfiguration

Setting and Setting Values	Setting Description
`TraceLogLevel`= `Debug` (default value), `Fatal`, `Error`, `Warn`, `Info`, `Verbose` or `Off`	Analysis uses Apache log4net to record log and trace information. You use this setting to define the amount of log and trace information that should be stored in the log.config file. The default value is `Debug`. You can change the value to `Fatal`, `Error`, `Warn`, `Info` or `Verbose`. If you change the value to `Off`, no log and trace information will be stored. For more information about the values, see the Apache log4net documentation. This setting can only be maintained by an administrator in the file system under `C:\ProgramData\SAP\Cof`.

VersionConfiguration

Setting and Setting Values	Setting Description
`MinorVersion=<integer value of the installed version>` (default value) or any integer value lower than the installed version	You use this setting to specify the minor version that should be used. The default value is the integer value of the installed version, for example value `3` for version 2.3. If you change the value to `1`, version 2.1 will be used. This setting can only be maintained by an administrator in the file system under `C:\ProgramData\SAP\Cof`.

3.4 Settings for the Analysis Plug-in

The settings for the Analysis Plug-in are delivered in the `Ao_app.config` file.

In this file, the settings are grouped in the following configuration sections:

- AsymetricReportingConfiguration
- BoeConfiguration [page 29]
- DataSourceConfiguration [page 38]
- DateTimeConfiguration [page 51]
- DimensionSyncConfiguration [page 52]
- DocumentConfiguration [page 53]
- FormulaConfiguration [page 58]
- FormulaEditorConfiguration [page 59]
- GridConfiguration [page 59]
- HanaConfiguration [page 60]
- NavPaneConfiguration [page 61]
- NewLinesConfiguration [page 63]
- NumberFormatConfiguration [page 63]
- OpenDialogConfiguration [page 65]
- PaGridConfiguration [page 66]
- PlanningConfiguration [page 67]
- SelectorConfiguration [page 76]
- TaskPaneConfiguration [page 82]
- UiCommonConfiguration [page 84]
- UsageConfiguration [page 94]
- UtilitiesConfiguration [page 96]
- VariableConfiguration [page 103]
- WaterfallChartConfiguration [page 110]

- WorkbookConversionConfiguration [page 111]
- WorkspaceConfiguration [page 113]

For more information about maintaining file system settings, see Maintaining settings in the file system [page 16]

3.4.1 BoeConfiguration

In the configuration section (configSection) *BoeConfiguration*, you can find the following settings (section name).

BOESessionRefreshTime

Setting and Setting Values	Setting Description
`BOESessionRefreshTime`= `-1` (default value) or any integer value.	You use this setting to specify the time in seconds Analysis is waiting to make a dummy Http request to keep the BI platform session active. The default value is `-1`. This means that the time taken is the session time out retrieved from the BI platform minus one minute: Analysis will send the dummy Http request to the BI platform before the timeout value so that Analysis remains active. You can enter any integer value for this setting to define the time for Analysis.

BOESystems

Setting and Setting Values	Setting Description
`BOESystems`	This setting contains the configuration to the Business Intelligence Platform. For more information, see To define a system connection to SAP BusinessObjects Business Intelligence [page 126].

DefaultLauncherScheme

Setting and Setting Values	Setting Description
`DefaultLauncherScheme=""` (default value) or `https`	When logged on to BI Launchpad using HTTPS and trying to view an Analysis workbook or presentation, an error message "Failed to launch with specified file!" is displayed. You can implement a BI platform with version 4.1 SP03 (or higher) or 4.1 Patch 2.2 (or higher) to solve the issue. Alternatively, you can also set this setting to value `https`. All viewed Analysis workbooks/presentations will then launch via HTTPS. Thus remove this registry value as soon as you have implemented one of the requested BI platform versions.

ForceWriteOlapConnectionInformationDuringWorkbookSave

Setting and Setting Values	Setting Description
`ForceWriteOlapConnectionInformationDuringWorkbookSave=true` or `false` (default value)	You can use this setting to fix workbooks with OLAP connections saved on the BI platform using an Analysis version 2.5 SP1 or lower. With these workbooks, it is possible that precalculation does not work and you get a message from the server like 'Document does not contain OLAP connections'. To fix the workbook, set the value to True. After setting the value to true, restart Analysis and open the workbook from the BI platform to overwrite the existing one.

IncludeInstancesInInfoObjectSearchResult

Setting and Setting Values	Setting Description
`IncludeInstancesInInfoObjectSearchResult` =`true` or `false` (default value)	When you search for a workbook stored on the BI platform in Analysis (in the Excel Backstage -> Analysis -> Open Workbook -> Open Workbook from the SAP BusinessObjects BI Platform), the search results might include more than one instance of the same workbook. But the additional instances might have different file sizes. However, when you search for the same workbook in the Central Management Console (CMC) in the BI platform, only the original workbook is included in the search results. You can use this setting to specify whether the additional instances should be part of the search result in Analysis. The default value is `False`. This means that the additional search results are not part of the search result in Analysis. If you set the value to `True`, the additional instances will be shown in the search result.

ReadOnlyBoeSystemsList

Setting and Setting Values	Setting Description
`ReadOnlyBoeSystemsList=true` or `false` (default value)	When a workbook is launched from BI Platform/Launchpad, the existing BIP Web Service (Logon) URLs and authentication types in the Analysis *Logon to SAP BusinessObjects Enterprise* dialog are overwritten. They can also be changed manually by the user. You can avoid this behavior and keep the existing Web Service URLs and authentication types read-only, as maintained in the Analysis user configuration file at %appdata%\SAP\Cof\Ao_user_roaming.config. Please see setting `BoeSystems`. You can use this setting to specify whether the BIP Web Service (Logon) URLs and authentication types should be editable. The default value is `False`. This means that the BIP Web Service (Logon) URLs and authentication types are editable.. If you set the value to `True`, the BIP Web Service (Logon) URLs and authentication types are read-onlay.

RetrieveMultilingualTexts

Setting and Setting Values	Setting Description
`RetrieveMultilingualTexts` = `true` (default value) or `false`	On the BI platform, the name and description of documents and folders can be translated. You use this setting to specify if the translated texts should be available in Analysis. The default value is `True`. This means that the translated names are available in Analysis. Depending on the selected language, you see the original version or a translated version. If you set the value to `False`, only the original version is available in Analysis.

TwoFactorAuthenticationCertificate

Setting and Setting Values	Setting Description
`TwoFactorAuthenticationCertificate` = `<certificate>`	After the first usage of the two-factor authentication, you can see here the selected certificate.

TwoFactorAuthenticationDisabled

Setting and Setting Values	Setting Description
`TwoFactorAuthenticationDisabled` = `true` or `false` (default value)	You can use this setting to disable the two factor authentication. The default value is `False`. This means that the two-factor authentication is enabled as soon as a URL is available in setting `TwoFactorAuthenticationUrl`. If you set the value to `True`, the two-factor authentication is disabled and you can log on to another BI platform. You have to enter the BI platform and your credentials in the log on dialog.

TwoFactorAuthenticationUrl

Setting and Setting Values	Setting Description
`TwoFactorAuthenticationUrl` = `<URL>`	You can enter the URL of the BI platform that should be used for two-factor authentication (single-sign on). If you enter a URL of a BI platform, two-factor authentication is used for logon and no logon dialog is displayed after the first usage. For the first usage, the user has to select a client certificate. If you need to log on to another BI platform, you can disable the two-factor authentication with setting `TwoFactorAuthenticationDisabled`.

UseServerTypeParamForOlapConnections

Setting and Setting Values	Setting Description
`UseServerTypeParamForOlapConnections` = `true` or `false` (default value)	You can use this setting to specify whether Analysis should check and use the hostname according to the value of the ServerType property of the OLAP connection to get a valid hostname for the OLAP connection. The default value is `False`. This means that Analysis does not check the hostname that was configured for the OLAP connection. If the connection is invalid, Analysis may run into an error. If you set the value to `True`, Analysis checks the hostname and takes it according to the value of the ServerType property defined in the OLAP connection. The connection will then work properly. For more information, please see SAP Note 3151137.

3.4.2 BrowserBasedLogonDialogConfiguration

In the configuration section (configSection) *BrowserBasedLogonDialogConfiguration*, you can find the following settings (section name).

ForceHttpsScheme

Setting and Setting Values	Setting Description
ForceHttpsScheme= `true` (default value) or `false`	You use this setting to specify whether the SAP Analytics Cloud URLs should be converted to `https` for the logon. After installation, the default value is `True`. This means that the SAP Analytics Cloud URLs are converted to `https` before the logon window is shown.. If you change the parameter value to `False`, the the SAP Analytics Cloud URLs won't be converted to `https`.

3.4.3 ConnectionConfiguration

In the configuration section (configSection) *ConnectionConfiguration*, you can find the following settings (section name).

DefaultConnectionLimit

Setting and Setting Values	Setting Description
`DefaultConnectionLimit`= `10` or any integer value	You use a workbook with several SAP HANA data sources. When refreshing the workbook, a thread is created for each data source for retrieving the result set via HTTP (Note that the number of parallel threads might be limited by the Analysis setting MaxNumberOfParallelThreads). Due to a limitation in the underlying .net framework, the SAP HANA server gets at most two HTTP requests in parallel. You use this setting to overwrite the .net default value and specify The default value is 10. This means that Analysis can get up to 10 HTTP requests in parallel. You can enter any integer value for this setting.

PreferDirectAssertionTickets

Setting and Setting Values	Setting Description
`PreferDirectAssertionTickets` = `true` (default value) or `false`	When you try to establish a second OLAP connection or open a workbook from the BI platform, Analysis waits for the backend RFC call to get a new re-entrance ticket RSAO_GET_REENTRY_TICKET against the BW system. If the ticket does not return, Analysis could freeze and become unresponsive. That is the behavior if this setting is set to `True` (default value). If you set the value to `False`, the ticket is obtained via the BI platform. To use this option, an active BI platform connection must be available.

RouterStringCopyOption

Setting and Setting Values	Setting Description
`RouterStringCopyOption` = `None` (default value), `SystemIdMatch`, `ExtendedPropertyMatch`,`Auto` or `Force`	In Analysis, you don't have the option to maintain an additional SAP Router string in OLAP connections. You can maintain additional router strings in the SAP GUI landscape, but Analysis can't copy them from the respective system entry. You can use this setting to specify whether Analysis should copy the router string from the SAP GUI landscape's respective system entry. The default value is `None`. This means that the router strings aren't copied from the SAP GUI landscape. If you change the value to `SystemIdMatch`, Analysis matches the remote BW system entry to the local SAP GUI Landscape by its system ID. If a match is found, Analysis copies the router string from the local match. If you change the value to `ExtendedPropertyMatch`, Analysis matches the remote BW system entry to the local SAP GUI Landscape by other properties like MessageServer or ServerGroup. If a match is found, Analysis copies the router string from the local match. If you change the value to `Auto`, Analysis tries to find a match with `ExtendedPropertyMatch`. If no match is found, Analysis uses `SystemIdMatch` to find a match in the SAP GUI landscape. If you change the value to `Force`, Analysis tries to find a match with `Auto`. If no match is found, it overwrites the existing router string in the remote BW system entry (for example, coming from the launcher). Note that this setting can only be maintained by an administrator in the file system under C:\ProgramData\SAP\Cof.

UseLocalSncInfoForRemoteConnections

Setting and Setting Values	Setting Description
`UseLocalSncInfoForRemoteConnections` = `true` (default value) or `false`	You can't maintain Secure Network Communication (SNC) information in the OLAP connections on the BI platform. But Analysis can read the SNC information from the SAPUI-Landscape. You can reuse the SNC information for your connection if the same system is maintained in the OLAP connection on the BI platform and in the SAPUILandscape. To enable the reuse of the SNC information, the setting `UseLocalSncInfoForRemoteConnections` must be set to true. This is the default value for this setting. If you set the value to `False`, the reuse of the SNC information for OLAP connections is disabled.

UseSacLiveHostnameInBwConnection

Setting and Setting Values	Setting Description
`UseSacLiveHostnameInBwConnection` = `true` or `false` (default value)	For SAP Analytics Cloud live data connections, Analysis downloads a launcher from the BW Live instance. This launcher may contain the hostname/IP which is accessible only from the internal network. But Analysis can always access the URL for the BW system from the SAP Analytics Cloud live data connection. You use this setting to specify whether the hostname from the SAP Analytics Cloud live data connection should be used for establishing a BW/RFC connection or not. The default value is `False`. This means that Analysis uses the hostname/server name from the launcher to establish the RFC connections. The hostname of the SAP Analytics Cloud live data connection isn't used to establish the BW/RFC connection. If you set the parameter value to `True`, Analysis will use the hostname/server name of the SAP Analytics Cloud live data connection (this URL is accessible from outside networks) to establish the BW/RFC connection.

UseSingleConnectionPerDestination

Setting and Setting Values	Setting Description
UseSingleConnectionPerDestination = `true` or `false` (default value)	You use this setting to specify whether only one connection per backend system should be established in the following scenario: • You use two or more data sources of the same backend system in your workbook. • The workbook property *Merge Variables* on the Components tab is selected. • A hierarchy node variable is used in the data sources having merged variables applied. The default value is `False`. This means that a separate connection is established for each data source, targeting the same backend system. This could cause program errors while executing client side variable merging. If you set the parameter value to `True`, only one connection per backend system will be established, and the variable merging can be successfully executed on the server side

3.4.4 DataSourceConfiguration

In the configuration section (configSection) *DataSourceConfiguration*, you can find the following settings (section name).

AllowChangingAccessMode

Setting and Setting Values	Setting Description
`AllowChangingAccessMode`= `true` or `false` (default value)	You use this setting to specify whether the access mode for member display should be enabled. After installation, the default value is `False`. This means that the access mode is not enabled for the member display definition in the crosstab and for the *Filter by Member* dialog box. If you change the parameter value to `True`, the access mode option is displayed in the menu.

BipSequentialDataTransferBufferSize

Setting and Setting Values	Setting Description
`BipSequentialDataTransferBufferSize`= `262144` bytes (default value) or any integer value for bytes	You use this setting to specify the number of bytes used for the UploadFile web service call when saving a workbook on the BI platform. The default value is `262144` bytes per call. When working with larger workbooks, increasing the number of bytes per call could improve the performance, for example, a value of 524288 bytes per call. If you change the value for this setting, you need to change accordingly the `maximumChunkSize` for the BI platform at `<InstallDir>\SAP BusinessObjects Enterprise XI 4.0\warfiles\webapps\dswsbobje\WEB-INF\classes`.

CurrentCodePage

Setting and Setting Values	Setting Description
`CurrentCodePage`= Encoding for the system's current code page	In some cases, the Open dialog shows system entries with unreadable characters when using saplogon.ini. This can be caused by the fact that the encoding of the saplogon.ini content is different from Windows default encoding. You use this setting to overrule the default code page by applying the appropriate code page number here.

DefaultBWQueryDesigner

Setting and Setting Values	Setting Description
`DefaultBWQueryDesigner`= `0` (default value) or `1`	You can access the BEx Query Designer or the BW Modeling Tools directly from Analysis with the ribbon option *Launch Query Designer*. If both designers are available, you can open a drop down list to select one. You use this setting to specify which designer is opened if the *Launch Query Designer* option is selected in the ribbon without opening the drop down list. After installation, the default value is `0`. This means that the BW Modeling Tools will be opened if the ribbon option *Launch Query Designer* is selected directly. If you change the parameter value to `1`, the BEx Query Designer will be opened if you select *Launch Query Designer* directly.

DisableBWDirectSearch

Setting and Setting Values	Setting Description
`DisableBWDirectSearch`= `true` or `false` (default value)	You use this setting to specify whether the direct search or the classic search should be used for searching data sources in BW systems. The direct search is faster but could lead to incomplete results in rare cases. In this case, we recommend switching to the classic search. To help us imnprove the direct search, please create an incident in the SAP Support Portal if you need to switch to classic search. After installation, the default value is `False`. This means that Analysis uses the direct search for BW data sources. If you change the parameter value to `True`, the classic search will be used.

DoNotCumulateListCalculationNullValues

Setting and Setting Values	Setting Description
`DoNotCumulateListCalculationNullValues=true` or `false` (default value)	You use this setting to specify how unbooked cells are handled in list calculations regarding the list calculated accumulation of null cells. After installation, the default value is `False`. This means that Analysis will repeat the value calculated for the last booked cell in the unbooked cells until the next booked cell will change the value. If you change the parameter value to `True`, the value for the last booked cell is not repeated in the unbooked cells but the unbooked cells are empty or have the value null.

EnablePreferrredPlatform

Setting and Setting Values	Setting Description
`EnablePreferredPlatform=true` (default value) or `false`	You use this setting to specify whether a user should be enabled to select a preferred platform in the platform settings dialog box. After installation, the default value is `True` . This means that the preferred platform section is visible in the platform settings dialog box and that the user can change the selection. If you change the parameter value to `False`, this section is hidden in the platform settings dialog box, and the user cannot change the preferred platform. The user is therefore unable to change the preferred platform defined in the *Preferred Platform* setting.

EnableResetDataSource

Setting and Setting Values	Setting Description
`EnableResetDataSource=true` (default value) or `false`	This setting is used in Analysis with minor versions ≤ 3 to specify whether the *Launch Query Designer* icon should be displayed in the ribbon. As of release 2.4, you customize the ribbon with the *Customize User Interface* dialog. Therefore, we recommend to use the *Customize User Interface* dialog to define the options displayed in the ribbon. **i Note** When switching to a version greater than 3, for example Analysis 2.4, Analysis takes your definition from this setting. If the parameter value for this setting was `True`, the *Launch Query Designer* icon is displayed in the standard profile for the ribbon. If it was `False`, it is not displayed.

GatewayServiceNo

Setting and Setting Values	Setting Description
`GatewayServiceNo= -1` (default value)	You can use this setting to define a gateway service number. After installation, the default value is `-1`. This means that no gateway service number is defined. If you change the parameter value to a number greater than 0 and a Gateway host is also defined, the value is added as the gateway port (GatewayServiceNumber or GWSERV) while establishing any RFC connection. If the value of the gateway service number is already set in the RFC parameters (e.g., coming from a launcher/local connection), Analysis won't override that value.

HierarchyLevelHideAutoOffset

Setting and Setting Values	Setting Description
`HierarchyLevelHideAutoOffset`= `Default` (default value), `""(empty)`, `X` or `R`	You use this setting to optimize the performance for the Show Levels functionality. Depending on your requirements, you can specify values for the RSADMIN parameter BICS_HRY_LVL_HIDE_AUTO_OFFSET to optimize the Show Levels functionality. The parameter values can be set in the backend and in Analysis. For more information, please see SAP Note 2864360.

IgnoreQueryDesignerVersionCheck

Setting and Setting Values	Setting Description
`IgnoreQueryDesignerVersionCheck=true` or `false` (default value)	You use this setting to define if the designer version on the machine should be checked. The default value for this setting is `False`. This means that the designer version will be checked. The Setting *Show 'Launch Designer' in Tools Group* in the user settings is only selectable if the correct designer version is installed. If you change the parameter value to `True`, the designer version will not be checked and the setting *Show 'Launch Designer' in Tools Group* is always selectable.

MaxNumberOfParallelThreads

Setting and Setting Values	Setting Description
`MaxNumberOfParallelThreads`= `10` (default value) or any integer value	You use this setting to define the maximum number of parallel threads that Analysis can use to open the SAP HANA data sources of a workbook. The default value is `10`. This means that up to 10 SAP HANA data sources can be opened with parallel threads. You can enter any integer value for this setting. If you set the value to `1` or lower, no parallel threads will be used. The data sources will be opened sequentially.

NoSystemMessages

Setting and Setting Values	Setting Description
`NoSystemMessages=true` or `false` (default value)	You use this setting to specify whether back-end system messages should be displayed or not. The default value for this setting is `false`. This means that back-end system messages will be displayed. If you change the value to `true`, back-end system messages will not be displayed.

OpenDSTreeView

Setting and Setting Values	Setting Description
`OpenDSTreeView=true` or `false` (default value)	You want to insert a new data source in Analysis and open the Select Data Source dialog. The selectable data sources are displayed in a list. This setting can be used to define the view for the selectable data sources. The options are list view and tree view. The default value is `false`. This means that the data sources are displayed in the list view. We recommend not changing the value. You can switch to the tree view in the Select Data Source dialog at any time. Note that this setting can only be maintained by an administrator in the file system under C:\ProgramData\SAP\Cof.

PreferredPlatform

Setting and Setting Values	Setting Description
`PreferredPlatform`= `0` (default value), `1`, `2`, `3` or `4`	You use this setting to define the preferred platform for your Analysis installation. After installation of Analysis, the default value of this parameter is set to `0`. This means that all platforms are enabled. If you set the parameter value to `1`, the SAP BusinessObjects Business Intelligence Platform is enabled. If you set the value to `2`, SAP BW is enabled as platform. With parameter value `3`, the SAP BusinessObjects Business Intelligence Platform with compatibility mode is enabled. This means that the workbook is saved as Analysis Workbook (Compatibility Mode). The Analysis Workbook (Compatibility Mode) object corresponds to the Microsoft Excel object used with former BI platform releases. If you set the parameter value to `4`, SAP Analytics Cloud is the preferred platform for Analysis.

PromptForCertificate

Setting and Setting Values	Setting Description
`PromptForCertificate`=`true` or `false` (default value)	You use this setting to specify whether the certificate should be searched for automatically or entered manually. The default value for this setting is `False`. This means that the certificate will be searched fo automatically. If no certificate can be found, you have to enter a user ID and a password. If you change the parameter value to `True`, you have to enter the certificate manually.

RecentListSize

Setting and Setting Values	Setting Description
`RecentListSize`= greater or equal `1`, default value = `10`	This setting defines the number of entries in the list of last opened data sources in the *Insert Data Source* dialog box. You can also define this number in the *User Settings* in the Settings dialog box. By pressing the *Delete Recently Used List* button, you can delete the history of the recently used data sources.

RemoveDataBeforeSaving

Setting and Setting Values	Setting Description
`RemoveDataBeforeSaving=true` or `false` (default value)	You use this setting to define whether the check box *Remove Data Before Saving* on the Components tab in the design panel is selected as default for new workbooks. If the check box is selected, it is saved without data. When you reopen the workbook, no data is displayed. To display the data, you have to refresh the data sources manually by choosing *Refresh All* in the menu. The default value is `False`. This means that the check box on the Components tab is not selected as default. If you change the parameter value to `True`, the check box is selected as default when you open a new workbook.

ResultSetSizeLimit

Setting and Setting Values	Setting Description
`ResultSetSizeLimit` = `-1`, `n` or empty (default)	This setting defines the maximum number of crosstab cells that are loaded from the server for one data source. If a data source contains data for more cells than defined here, a message displays. The standard value for this setting is empty and the maximum number of cells is 500000. If you set the parameter to a specific number greater than or equal to 0, you define the maximum number of cells with this value. If you set the parameter to `-1`, the setting uses the values defined in the BW system. In a BW system, the parameter is set in the `RSADMIN` table for object `BICS_DA_RESULT_SET_LIMIT_MAX`.

RfcBundling

Setting and Setting Values	Setting Description
`RfcBundling`= `true` (default value) or `false`	This setting is recommended when working in an WAN environment to reduce network traffic. After installation, the default value is `True`.

SaveAs1xByDefault

Setting and Setting Values	Setting Description
`SaveAs1xByDefault=true` or `false` (default value)	You use this setting to define whether a workbook should be saved by default with 1.x format in Analysis 2.x versions. The default value is `False`. This means that the checkbox *Save as 1.x format* is not selected by default in the saving dialog in Analysis. If you change the parameter value to `True`, the checkbox *Save as 1.x format* is selected by default in the saving dialog in Analysis.

SetMemberAccessModeForDependents

Setting and Setting Values	Setting Description
`SetMemberAccessModeForDependents=<no value>` (default value), `MASTER_DATA`, `MASTER_DIMENSION_INITIAL` or `MASTER_DIMENSION_ALWAYS`	You use this setting to specify how the dependent crosstabs' access mode is set when crosstabs are grouped. After the installation, no value is set. This means that the result set access mode of the dimension in the dependent crosstab will not be changed. If you use different acces modes for the same dimension in the master and the dependent crosstab, this could cause issues like unexpected empty cells in the dependent crosstab and in rare case lead to exceptions. If you change the parameter value to `MASTER_DATA`, the result set access mode "Master Data" (values in Master Data Table) will initially be used for all dimensions in the dependent crosstabs. You can change this access mode in the properties of the dimension in the design panel. If you change the parameter value to `MASTER_DIMENSION_INITIAL`, the result set access mode of the master dimension will initially be used for all dependent dimensions. If you change the access mode of the master after grouping the crosstab, the new mode will not be forwarded to the dependant dimensions. You can change this access mode in the properties of the dimension in the design panel. If you change the parameter value to `MASTER_DIMENSION_ALWAYS`, the result set access mode of the master dimension will always be used for all dependent dimensions. If you change the access mode of the master after grouping the crosstab, the new mode will be forwarded to the dependant dimensions. You can't change this access mode in the properties of the dimension in the design panel.

ShowBracketsForVirtualEntriesOfNonCumulativeKeyfigures

Setting and Setting Values	Setting Description
`ShowBracketsForVirtualEntriesOfNonCumulativeKeyfigures`= `true` (default value) or `false`	You use this setting to specify whether Analysis shows brackets for non-cumulative measures that don't have a booked value in the corresponding time interval. In SAP BW brackets for non-cumulative key figures are always shown. After installation, the default value is `True`. This means that Analysis shows brackets for non-cumulative measures. If you change the parameter value to `False`, Analysis will not show brackets for non-cumulative measures.

SkipPreferringSystemIpAddressOverHostName

Setting and Setting Values	Setting Description
`SkipPreferringSystemIpAddressOverHostName`=`true` or `false` (default value)	You use this setting to specify whether the launcher file for the BEx Query Designer is generated using the IP address of the relevant BW system or its host name. The default value is `False`. This means that the IP address is used for generating the launcher file. When the IP address of the BW system is not accessible from the client where Analysis is installed, you might run into an RFC error. If you change the parameter value to `True`, the launcher file for the BEx Query Designer will be generated using the host name of the relevant BW system.

SubsequentRefreshDefault

Setting and Setting Values	Setting Description
`SubsequentRefreshDefault=TransactionDataOnly` (default value) or `LogOffReconnect`	You use this setting to specify the default behavior for executing *Refresh All*. After the installation, the default value is `TransactionDataOnly`. This means that for all data sources that are online in a workbook, the transactional data is updated when *Refresh All* is executed. If you change the parameter value to `LogOffReconnect`, executing *Refresh All* loggs off an reconnects all data sources that are online.

SupportsSaveAs1x

Setting and Setting Values	Setting Description
`SupportsSaveAs1x=true` or `false` (default value)	You use this setting to define whether a workbook could be saved with 1.x format in Analysis 2.x versions. The default value is `False`. This means that it is not possible to save a workbook with 1.x format. If you change the parameter value to `True`, the checkbox *Save as 1.x format* is available in the saving dialog in Analysis.

TransferFilterValuesWhileAssigningHierarchy

Setting and Setting Values	Setting Description
`TransferFilterValuesWhileAssigningHierarchy=true` or `false` (default value)	You use this setting to define whether filter values of a dimension are transferred when a different hierarchy or a flat presentation is assigned to the dimension. The default value is `False`. This means that filter values will not be transferred. If you change the parameter value to `True`, the filter values will be transferred as far as possible when flat presentation or a different hierarchy is assigned to a dimension.

UseDataSourceDeltaUpdate

Setting and Setting Values	Setting Description
`UseDataSourceDeltaUpdate`= `true` (default value) or `false`	You use this setting to specify whether only the delta data or the complete data of a data source should be reloaded and updated in Analysis. After installation, the default value is `True`. This means that only the delta data of the data source is updated in Analysis. If you change the parameter value to `False`, the complete data of the data source is reloaded to Analysis.

UseSapUILandscapeComApi

Setting and Setting Values	Setting Description
`UseSapUILandscapeComApi=true` or `false` (default value)	For Analysis versions ≤ 2.8 SP10, you can use this setting to define whether Analysis uses the SAP GUI SAPUILandscapeLib to access information about system data or its own parsing logic. As of Analysis 2.8 SP11, we do not recommend changing the default value. The default value is `False`. This means that Analysis uses its own parsing logic, which makes it independent from the SAP GUI version. If you change the parameter value to `True`, Analysis uses the COM API SAPUILandscapeLib if SAP GUI 7.40 SP8 or higher is installed.

3.4.5 DateTimeConfiguration

In the configuration section (configSection) *DateTimeConfiguration*, you can find the following settings (section name).

EnableNativeFormatting

Setting and Setting Values	Setting Description
`EnableNativeFormatting`= `true` or `false` (default value)	Analysis renders date, date time and time span values with format *Text*. It does not use the native Microsoft Excel fomats *Date* and *Time*. You use this setting to enable native Microsoft Excel formats for rendering in Analysis. The default value is `False`. This means that native Excel formats are not used for rendering.. If you change the value to `True`, Analysis renders date, date time and time span values as native Microsoft Exel *Date* and *Time* formats.

ShowUtcTimeStampsInDataCells

Setting and Setting Values	Setting Description
`ShowUtcTimeStampsInDataCells`= `true` or `false` (default value)	You use this setting to specify whether the UTC timestamps or localized timestamps are displayed in the data cells. The default value is `False`. This means that localized timestamps are displayed in the data cells. If you change the value to `True`, the UTC timestamps are displayed.

3.4.6 DimensionSyncConfiguration

In the configuration section (configSection) *DimensionSyncConfiguration*, you can find the following settings (section name).

MatchDimensionsByText

Setting and Setting Values	Setting Description
`MatchDimensionsByText`= `true` or `false` (default value)	For grouping crosstabs and linking dimensions, Analysis uses the dimension names to match master and dependant dimensions. Therefore, these options are not enabled if the queries contain dimensions with different names but with the same description. You use this setting to specify whether the dimension descriptions should also be used to match the dimensions between master and dependant. After installation, the default value is `False`. This means that only the dimension names are used to match the master and dependant dimension. If you change the parameter value to `True`, the dimension names and descriptions are used to match the dimensions between master and dependant. In the first step, Analysis tries to match the dimension names. If there's no match, Analysis tries to match the dimension descriptions.

3.4.7 DocumentConfiguration

In the configuration section (configSection) *DocumentConfiguration*, you can find the following settings (section name).

DefaultWorkbookPath

Setting and Setting Values	Setting Description
`DefaultWorkbookPath`= path to default workbook in directory.	Use this setting to define the path to the default workbook in the directory. You can enter the path as a full path (C:\Users*User-Name*\AppData\Roaming\DefaultWorkbook.xlsx) or use an environment variable (%AppData%\DefaultWorkbook.xlsx). The variable will be resolved during runtime.

DocumentCacheFolderPath

Setting and Setting Values	Setting Description
`DocumentCacheFolderPath`= `""` (default value)	You use this setting to overwrite the default cache directory path. Analysis workbooks are saved to the directory `sapaocache` which is located beneath the users `Temp` directory. It is not possible to add the specific workbooks path to Excel's `Trusted Location` section. This is due to the fact that Microsoft does not allow adding paths to `Trusted Location` which points to a directory beneath the users `Temp` directory whenever working with MS Office 2010 or higher. If you want to overwrite the default cache directory path, you can enter a path here. Note that the path must not be set to a OneDrive or SharePoint folder.

EnablePreferredDocumentStorage

Setting and Setting Values	Setting Description
`EnablePreferredDocumentStorage`= `true` (default value) or `false`	You use this setting to specify whether a user should be enabled to select a preferred comments storage in the platform options dialog box. After installation, the default value is `True`. This means that the Comments Storage section is visible in the platform options dialog box and that the user can change the selection. If you change the parameter value to `False`, this section is hidden in the platform options dialog box, and the user cannot change the preferred comments storage. The user is therefore unable to change the comments storage defined in setting `PreferredDocumentStorage`.

IsCachingDocuments

Setting and Setting Values	Setting Description
`IsCachingDocuments`= `true` (default value) or `false`	You use this setting to specify whether caching should be enabled. After installation, the default value is `True` . This means that caching is active. If you change the parameter value to `False`, the function is disabled and caching cannot be used.

PreferredDocumentStorage

Setting and Setting Values	Setting Description
`PreferredDocumentStorage`= 0, 1 or 2 (default value)	You use this setting to define the preferred document storage for comments in Analysis. After installation of Analysis, the default value of this parameter is set to 2. This means that the preferred document storage is SAP Business Warehouse. If you set the parameter value to 1, the SAP BusinessObjects Business Intelligence Platform is used as document storage for comments. If you set the value to 0, comments are not stored on platform.

StylesCountPerformanceTreshold

Setting and Setting Values	Setting Description
`StylesCountPerformanceTreshold`= `2000` (default value) or any integer value.	The number of cell styles used in a workbook can decrease the performance in Analysis. You use this setting to specify the number of styles that can be used in workbook before a warning message is displayed. The default value is `2000`. This means that a warning message will appear if more than 2000 celll styles are used in a workbook. You can enter any integer value for this setting. With value `0`, the warning is disabled and no message will be displayed.

UseDocumentDescriptionToConstructBIPDocumentFileName

Setting and Setting Values	Setting Description
`UseDocumentDescriptionToConstructBIPDocumentFileName=true` or `false` (default value)	You use this setting to specify whether the description or the technical name of a workbook is used to construct the file name for workbooks saved on the BI platform. The file name is shown in the Microsoft Excel title bar, for example. The default value for this setting is `False`. This means that the technical name is used to construct the file name. If you change the parameter value to `True`, the description will be used to construct the file name.

UseDocumentDescriptionToConstructBWDocumentFileName

Setting and Setting Values	Setting Description
`UseDocumentDescriptionToConstructBWDocumentFileName=true` (default value) or `false`	You use this setting to specify whether the description or the technical name of a workbook is used to construct the file name for workbooks saved on an SAP BW platform. The file name is shown in the Microsoft Excel title bar, for example. The default value for this setting is `True`. This means that the description is used to construct the file name. If you change the parameter value to `False`, the technical name will be used to construct the file name.

3.4.8 ExternalBrowserConfiguration

In the configuration section (configSection) *ExternalBrowserConfiguration*, you can find the following settings (section name).

AutomaticLogoffInSeconds

Setting and Setting Values	Setting Description
`AutomaticLogoffInSeconds`= `20` (default value) or any integer value.	You use this setting to specify the time (in seconds) Analysis is waiting to close the external browser window used for the logon to SAP Analytics Cloud. The default value is `20`. This means that external browser window is closed after 20 seconds. You can enter any integer value for this setting to define the time (in seconds) Analysis is waiting to close the external browser window.

UseExternalBrowserForDwcLogon

Setting and Setting Values	Setting Description
`UseExternalBrowserForDwcLogon`= `true` or `false` (default value)	You use this setting to specify whether Analysis should use an external browser to log on to SAP Data Warehouse Cloud. After installation, the default value is `False`. This means that the embedded brower is used to connect to an SAP Data Warehouse Cloud tenant. If you change the parameter value to `True`, an external window of your default OS browser will open to log on to an SAP Data Warehouse Cloud tenant. Note that this setting can only be maintained by an administrator in the file system under C:\ProgramData\SAP\Cof.

UseExternalBrowserForSacLogon

Setting and Setting Values	Setting Description
`UseExternalBrowserForSacLogon`= `true` or `false` (default value)	You use this setting to specify whether Analysis should use an external browser to log on to SAP Analytics Cloud. After installation, the default value is `False`. This means that the embedded brower is used to connect to an SAP Analytics Cloud tenant. If you change the parameter value to `True`, an external window of your default OS browser will open to log on to an SAP Analytics Cloud tenant. Note that this setting can only be maintained by an administrator in the file system under C:\ProgramData\SAP\Cof.

3.4.9 FormulaConfiguration

In the configuration section (configSection) *FormulaConfiguration*, you can find the following settings (section name).

SetFilterComponentApplyToAllDataSources

Setting and Setting Values	Setting Description
`SetFilterComponentApplyToAllDataSources`= `true`(default value) or `false`	In Analysis, you can insert a filter component using the ribbon. If your workbook contains more than one data source, the *Select Data Source* dialog box appears where you can define the data sources for the filter. You use this setting to specify if the check box *Apply filter to all data sources* should be selected by default. After installation, the default value is `True`. This means that the filter is applied to all data sources. If you change the parameter value to `False`, the filter will only be applied to the selected data source.

3.4.10 FormulaEditorConfiguration

In the configuration section (configSection) *FormulaEditorConfiguration*, you can find the following settings (section name).

FormulaExpressionValidationInterval

Setting and Setting Values	Setting Description
`FormulaExpressionValidationInterval`= 2 (default value)	You can add a new measure based on a free-form calculation to a crosstab. The new measures are defined in the *New Calculation* dialog box. The formula that you enter in the dialog box is checked on a regular basis. You use this setting to specify the number of seconds. The default value is 2. This means that the formula is checked two seconds after your last change in the formula editor. You can enter any integer value for this setting.

3.4.11 GridConfiguration

In the configuration section (configSection) *GridConfiguration*, you can find the following settings (section name).

EnableDoubleClick

Setting and Setting Values	Setting Description
`EnableDoubleClick`= `true` (default value) or `false`	You use this setting to specify whether filtering a member with a double click should be enabled. After installation, the default value is `True`. This means you can filter for one member with a double click on the member cell. If you change the parameter value to `False`, the function is disabled.

NrOfSingleCellsInContext

Setting and Setting Values	Setting Description
`NrOfSingleCellsInContext`= greater or equal `1`, default value = `100`	This setting defines the maximum number of crosstab cells that can be selected to execute analysis options, for example filtering. If more cells are selected in a crosstab, the analysis options are disabled. The default value is `100`.

ShowCutCopyPasteInGridContextMenu

Setting and Setting Values	Setting Description
`ShowCutCopyPasteInGridContextMenu`= `true` or `false` (default value)	In Microsoft Excel, the context menu for each cell contains entries to cut, copy and paste cell content. You can use this setting to specify whether these entries should be available for Analysis crosstab cells. The default value is `false`. This means that the context menu on Analysis crosstab cells does not contain the Microsoft Excel Cut, Copy and Paste options. If you change the parameter value to `True`, the Cut, Copy and Paste options are available in the context menu for Analysis crosstab cells.

3.4.12 HanaConfiguration

In the configuration section (configSection) *HanaConfiguration*, you can find the following settings (section name).

HanaHttpConnectionTimeout

Setting and Setting Values	Setting Description
`HanaHttpConnectionTimeout`= `-1` (default value) or any integer value.	You use this setting to specify the time Analysis is waiting to get a connection to a HANA HTTP server. The default value is `-1`. This means that there is no timeout for connecting to a HANA HTTP server. You can enter any integer value for this setting to define the time Analysis is waiting to get a connection. The unit is millisecond. If you specify value 60000, for example, Analysis is waiting 60000 milliseconds to establish the connection. If it is not possible to connect to a HANA HTTP server in the defined timeout period, a message is displayed in Analysis.

HanaHttpSessionPingInterval

Setting and Setting Values	Setting Description
`HanaHttpSessionPingInterval`= `180` (default value) or any integer value.	You use this setting to specify the time Analysis is waiting to send a regular HTTP ping request to HANA XS to keep the session alive. The default value is `180`. This means that Analysis is sending the request every 180 seconds. You can enter any integer value for this setting to define the time for the next ping request. There is a correlation of the session timeout defined in HANA XS. This session timeout value can be configured in the HANA XS configuration under xsengine.ini -> httpserver -> sessiontimeout (value in seconds).

3.4.13 NavPaneConfiguration

In the configuration section (configSection) *NavPaneConfiguration*, you can find the following settings (section name).

ShowAllHierarchies

Setting and Setting Values	Setting Description
`ShowAllHierarchies`= `true`(default value) or `false`	You use this setting to specify whether all time-dependent hierarchies for a dimension should be available in the design panel. After installation, the default value is `True`. This means that all hierarchies are available in the design panel. If you change the parameter value to `False`, the hierarchies are no longer available in the design panel.

ShowGroupedDimensions

Setting and Setting Values	Setting Description
`ShowGroupedDimensions`=`true` or `false` (default value)	You use this setting to define whether dimensions are displayed grouped or as a flat list on the Analysis tab in the design panel. The default value is `False`. This means that the dimensions are displayed as a flat list. You can change the view in the ribbon. The selected view remains in the design panel until you deselect it again, even if you close Excel meanwhile. If you change the parameter value to `True`, the dimensions are displayed in groups by default. Note that the dimension grouping is done in the corresponding backend system, SAP BW or SAP HANA.

ShowProperties

Setting and Setting Values	Setting Description
`ShowProperties=true` or `false` (default value)	You use this setting to define whether the *Property View* in the design panel is displayed by default. The default value is `False`. This means that the Property View is not displayed when you open the design panel. You can open the property view in the ribbon. The property view remains in the design panel until you deselect it again, even if you close Excel. If you change the parameter value to `True`, the Property View is displayed in the design panel by default.

3.4.14 NewLinesConfiguration

In the configuration section (configSection) *NewLinesConfiguration*, you can find the following settings (section name).

UseNewLinesLegacyMode

Setting and Setting Values	Setting Description
`UseNewLinesLegacyMode= true` or `false (default value)`	You use this setting to specify which mode for entering planning data in new lines is used. After installation, the default value is `False`. This means that current mode will be used for entering planning data in new lines. This mode is valid for BW systems of type SAP BW/4HANA SP8 or higher and SAP BW 7.50 SP12 or higher. For former BW versions, the legacy mode will be applied automatically. If you change the parameter value to `True`, the legacy mode will be used for data sources of all BW systems.

3.4.15 NumberFormatConfiguration

In the configuration section (configSection) *NumberFormatConfiguration*, you can find the following settings (section name).

ApplyNumberFormatsForFormulas

Setting and Setting Values	Setting Description
`ApplyNumberFormatsForFormulas=` `LegacyMode` (default value), `Off`, `OnWithDecimalPlacesAndUnits`, `OnWithDecimalPlaces` or `OnWithUnits`	You use this setting to specify how data cells are formated when using formulas. The definition of this setting is applied to all data sources in a workbook. Note that you need to restart Analysis after switching to or from the LegacyMode or the Off mode. After installation, the default value is `LegacyMode`. This means that values in data cells are displayed with decimal places and units. However, Analysis can only render number formats for a maximum of 5 formulas with LegacyMode. If you use more formulas, you can switch to the parameter value `OnWithDecimalPlacesAndUnits`. If you change the parameter value to `Off`, no number format is applied in data cells. If you change the parameter value to `OnWithDecimalPlacesAndUnits`, the values in data cells are displayed with decimal places and units. This mode has no formula limits and also has a better performance than the LegacyMode. If you change the parameter value to `OnWithDecimalPlaces`, the values in data cells are displayed with decimal places but without units. If you change the parameter value to `OnWithUnits`, the values in data cells are displayed with units but without decimal places.

ChangeNumberFormatToTextForFilterComponent

Setting and Setting Values	Setting Description
`ChangeNumberFormatToTextForFilterComponent= true` or `false` (default value)	You use this setting to specify whether Analysis should apply the cell format Text initially to cells defined on time-related dimensions with the SapSetFilterComponent formula. After installation, the default value is `False`. This means that the cell format Text won't be applied. If you change the parameter value to `True`, the cell format Text will be applied. For more information, see SAP Note 2829371.

3.4.16 OpenDialogConfiguration

In the configuration section (configSection) *OpenDialogConfiguration*, you can find the following settings (section name).

RememberSearchObjectType

Setting and Setting Values	Setting Description
`RememberSearchObjectType= true` or `false (default value)`	In the *Select Data Source* dialog, you can search for all objects of a system or objects of one object type. For example, in BW systems, you can search for all objects, InfoProvider, Queries, or Query Views. You use this setting to specify whether your selection for the object type should be remembered the next time you use Analysis. The default value for this setting is `False`. This means that the selected object type in the Select Data Source dialog won't be remembered. If you change the parameter value to `True`, the selected object type in the Select Data Source dialog will be remembered. Note that this setting can only be maintained by an administrator in the file system under C:\ProgramData\SAP\Cof.

SearchObjectTypeBw

Setting and Setting Values	Setting Description
`SearchObjectTypeBw=All (default value)`	This setting preselects an object type in the *Select Data Source* dialog for BW systems. After the installation, the default value is All. This means that *All* is preselected in the search dialog. We recommend not changing the default value. Note that this setting can only be maintained by an administrator in the file system under C:\ProgramData\SAP\Cof.

SearchObjectTypeHana

Setting and Setting Values	Setting Description
`SearchObjectTypeHana=Cube (default value)`	This setting preselects an object type in the *Select Data Source* dialog for HANA systems. After the installation, the default value is Cube. This means that *Cube* is preselected in the search dialog. We recommend not changing the default value. Note that this setting can only be maintained by an administrator in the file system under C:\ProgramData\SAP\Cof.

3.4.17 PaGridConfiguration

In Analysis for Microsoft PowerPoint, you can insert data sources as tables. You can use the following settings of the configuration section (configSection) *PaGridConfiguration* to define default numbers for rows and columns. You can change the number of rows in the *Fit Table* dialog in Analysis.

ColumnsOfData

Setting and Setting Values	Setting Description
`ColumnsOfData=12` (default value)	You use this setting to define the default number of columns. After installation, the default value is 12.

LinesOfData

Setting and Setting Values	Setting Description
`LinesOfData`= `12` (default value)	You use this setting to define the default number of rows. After installation, the default value is `12`.

3.4.18 PlanningConfiguration

In the configuration section (configSection) *PlanningConfiguration*, you can find the following settings (section name).

ActivateFormulaRecognitionOnExistingCells

Setting and Setting Values	Setting Description
`ActivateFormulaRecognitionOnExistingCells`= `true` (default value) or `false`	You use this setting to specify whether formulas in input-enabled cells are saved as table design formulas. The default value is `True`. This means that the formulas added to input-enabled cells are saved as table design formulas. They are added to the formula section on the design rules tab in the design panel and can be changed there. If you change the value to `False`, the formulas are not saved in the design panel.

AutoCompleteFetchMemberLimit

Setting and Setting Values	Setting Description
`AutoCompleteFetchMemberLimit`= `30` (default value) or any integer value	You can use an autocomplete input help for entering members in cells of new lines for planning. To use this help, enter a string in the cell, for example the first letters of a member, then press Ctrl+Space. A dialog is opened containing all members matching the string. With this setting, you can define a limit for the number of members available as input help. The default value is `30`. This means that up to 30 members are offered in the input help. You can enter any integer value for this setting.

BicsNewLineFillInitial

Setting and Setting Values	Setting Description
`BicsNewLineFillInitial`= `true` (default value) or `false`	You use this setting to define how Analysis handles empty cells in new linesthat are used for planning with new member combinations. The default value is `True`. This means that Analysis tries to derive missing member values. If a member value cannot be derived, Analysis fills in Not Assigned (Key: #). If you change the value to `False`, this behavior is stopped and Analysis does not try to derive missing member values. For more information on related SAP BW parameters, see SAP Note 2508938.

CheckForNewDataWhilePauseRefreshActive

Setting and Setting Values	Setting Description
`CheckForNewDataWhilePauseRefreshActive=true` (default value) or `false`	This setting is relevant when working with the planning related commands of the VBA method SAPExecuteCommand. For more information, see SAP Note 3111916. Please note that we recommend testing the usage of this setting before you use it productively.

EnableAdvancedFormulaReferences

Setting and Setting Values	Setting Description
`EnableAdvancedFormulaReferences=true` or `false` (default value)	Please note that this setting is currently not for productive use. We recommend enabling it only for tests. You use this setting to specify that cell references that are referenced by formulas used in the crosstab can be located on other sheets of the same workbook. The standard behavior in Analysis is that the crosstab and the referenced cells must be on the same sheet of the workbook. The default value is `False`. This means that the referenced cell must be located on the same sheet as the crosstab. If you change the value to `True`, the crosstab and the referenced cells can be located on different sheets. The referenced cells can contain values and formulas. For example, your crosstab is on Sheet1 and you enter the values on Sheet2. Then you can reference the cells from Sheet2 in your crosstab on Sheet1. Please check the current limitations: • The referenced cells can be located on different sheets, but the crosstab and the referenced cells must be in the same workbook. • The referenced cell you use in your crosstab must not contain references to other cells. For example, your crosstab is on Sheet1 and you reference cells from Sheet2 in your crosstab. Then, the cells on Sheet2 must not reference other cells. If you would like to provide feedback on this new feature, please open an incident in the SAP Support Portal.

IgnoreCaseForNewLineCharacteristics

Setting and Setting Values	Setting Description
`IgnoreCaseForNewLineCharacteristics= true` or `false` (default value)	You use this setting to specify whether the text for a characteristic member that you enter in a new line cell should be treated as case sensitive data. The default value is `False`. This means that the text will be treated as case sensitive and a member value which only is different in an upper or lower case from the expected value on the server is not accepted. If you change the value to `True`, the entered text will be treated as upper case text. Also here, a member value which only is different in an upper or lower case from the expected value on the server is not accepted.

InputReadyCellsValueHelpMemberAccessMode

Setting and Setting Values	Setting Description
`InputReadyCellsValueHelpMemberAccessMode` = P	You use this setting to specify the member access mode (value help) for input-ready cells. The default value is P (Planning). For more information on the existing modes, see 2180059.

NewLineCheckMode

Setting and Setting Values	Setting Description
`NewLineCheckMode`= `NONE` (default value), `MEMBERS` or `LINES`	You use this setting to specify whether a check for new or changed data in new lines is done. The default value is `NONE`. This means that no automatic check is executed. You can enter `MEMBERS` to run a check whenever a member was changed or added in new lines. Or you use the value `LINES` to run an automatic check whenever a line or a cell in a line was changed, and the derivation is done automatically. The derivations can only work if the characteristic relationship is modeled in the BW system.

NumberOfNewLines

Setting and Setting Values	Setting Description
`NumberOfNewLines`= `5` (default value)	You use this setting to define the default number of new lines. The default value is `5`. This means that 5 new lines will be added to the crosstab. You can enter any integer value for this setting.

PlanningFunctionUploadFolder

Setting and Setting Values	Setting Description
`PlanningFunctionUploadFolder= ""` (default value)	When using planning objects (functions and sequences), you can upload the values for executing planning objects from a file. You use this setting to define a default folder that is opened to select a file when you execute a planning object. The default value is `""`. This means that no default folder is defined. In this case, Analysis opens the folder you used the last time for selecting a file. If you enter a path to a folder for this setting, this folder is always opened to select a file when you execute a planning object.

ReassignPFLinkFilterOnInitialRefresh

Setting and Setting Values	Setting Description
`ReassignPFLinkFilterOnInitialRefresh= true` or `false` (default value)	You use this setting to specify whether the initial refresh of the planning function should link all dimensions to the filter object or data source with non-empty filter values. The default value is `False`. This means that the dimensions are not linked to the filter object or data source with non-empty filter values. If you change the value to `True`, the initial refresh of the planning function links all dimensions to the filter object or data source with non-empty filter values. Such a link of a dimension is not done if the dimension already uses a link or cell configuration or if a non-empty Member value is configured. For more information, see SAP Note 2851131

SetEmptiedDoubleDataCellsToValue0

Setting and Setting Values	Setting Description
`SetEmptiedDoubleDataCellsToValue0`= `true` (default value) or `false`	**Note** This setting is deprecated and is planned to be removed with next minor Analysis release > 2.5 as `True` seems to be the only relevant value. Please contact the Analysis team, if you need this setting in future. You use this setting to specify whether empty planning data cells are saved as 0(zero) or with their old value. The default value is `True`. This means that empty planning data cells are saved as 0. If you change the value to `False`, the empty planning data cells are not saved as 0. The old value remains.

ShowNewLinesOnTop

Setting and Setting Values	Setting Description
`ShowNewLinesOnTop`= `true` or `false` (default value)	You use this setting to specify whether the new lines should be added to the bottom or to the top of the crosstab. The default value is `False`. This means that new lines are added to the bottom of the crosstab. If you change the value to `True`, the new lines are added to the top of the crosstab.

TimerSetPlanQueriesToDisplayMode

Setting and Setting Values	Setting Description
`TimerSetPlanQueriesToDisplayMode`= `-1` (default value) or any integer value.	You use this setting to specify the time in minutes Analysis is waiting to set planning queries from change mode to display mode. The default value is `-1`. This means that Analysis won't set planning queries to display mode. You can enter any integer value for this setting to define the time for the switch in minutes. For example, if you enter the value 5, Analysis will show a dialog after 5 minutes without navigation informing that the queries will be set to display mode. A user can cancel the dialog and the queries stays in change mode. If the dialog isn't canceled, the queries will be set to display mode. With the setting `TimerDialogDisplayTime`, you can define the time the dialog is shown before the switch.

3.4.19 SacConfiguration

In the configuration section (configSection) *SacConfiguration*, you can find the following settings (section name).

AutoConnectToLastSelectedSacSystem

Setting and Setting Values	Setting Description
`AutoConnectToLastSelectedSacSystem`= `true` or `false` (default value)	This setting is relevant when working with Analysis, edition for SAP Analytics Cloud. In the *Connect to SAC* dialog, you can select to option *Remember my decision and use this connection from now on*. The next time you start to insert a data source, you'll be automatically connected to the current SAP Analytics Cloud tenant without seeing the *Connect to SAC* dialog again. The default value is `False`. This means that you get the *Connect to SAC* dialog whenever you start to insert a data source. If you select to option *Remember my decision and use this connection from now on* in the dialog or set this setting to `True`, you're automatically connected to the last selected SAP Analytics Cloud tenant without seeing the *Connect to SAC* dialog again. If you want to get the dialog again, you need to set the value for this setting to `False`.

LastSelectedSacSystem

Setting and Setting Values	Setting Description
`LastSelectedSacSystem`= `""` (default value)	This setting is relevant when working with Analysis, edition for SAP Analytics Cloud. After the installation, the default for this setting is `""`. This means that no connection to an SAP Analytics Cloud has been established so far. After connecting to one or several SAP Analytics Cloud tenants, Analysis remembers the last connection you used for the next session. This connection is then preselected in the *Connect to SAC* dialog when you use Analysis the next time.

SacHttpSessionPingInterval

Setting and Setting Values	Setting Description
`SacHttpSessionPingInterval`= `180` (default value) or any integer value.	You use this setting to specify the time Analysis is waiting to send a regular HTTP ping request to SAP Analytics Cloud to keep the session alive. The default value is `180`. This means that Analysis is sending the request every 180 seconds. You can enter any integer value for this setting to define the time for the next ping request.

3.4.20 SelectorConfiguration

In the configuration section (configSection) *SelectorConfiguration*, you can find the following settings (section name).

AllowLeavesViewInHierarchicalSelector

Setting and Setting Values	Setting Description
`AllowLeavesViewInHierarchicalSelector`= `true` (default value) or `false`	Changing the display mode from hierarchy to leaves can take a very long time depending on the number of levels and leaves the hierarchy contains. Therefore you can use this setting to specify whether the leaves view should be enabled for hierarchies in the filter and prompts dialog. The default value is `True`. This means that the leaves view is enabled. If you change the parameter value to `False`, the leaves view will be disabled.

DoSelectorHierarchyExplicitSelection

Setting and Setting Values	Setting Description
`DoSelectorHierarchyExplicitSelection`= `true` or `false` (default value)	You use this setting to specify the behavior of the *Filter By Member* dialog for hierarchies. For hierarchies, the selection of a node means also the selection of its children in the filter dialog box. And vice versa, the selection of all children means also the section of the corresponding node. This is the behavior for the default value `False`. If you change the value to `True`, the hierarchy selection behaves different. The selection of a node still means the selection of its children. But you can select all children without having selected automatically the corresponding node. If new children are available in the hierarchy, they are not selected automatically as long as the node is not selected.

EnableMassDataSelector

Setting and Setting Values	Setting Description
`EnableMassDataSelector`= `true` (default value) or `false`	You use this setting to specify whether the filter dialog box for mass data should be enabled. After installation, the default value is `True`. This means that the filter dialog box for mass data is opened if the maximum number of members defined in the User settings is reached. If you change the parameter value to `False`, the function is disabled and the filter dialog box for mass data is not opened.

EnableNodeTextClickInFilterDialog

Setting and Setting Values	Setting Description
`EnableNodeTextClickInFilterDialog`= `true` (default value) or `false`	In the filter dialog in Analysis, you can select a member by clicking the checkbox or the text next to the checkbox. You use this setting to specify whether selecting a member with a click on the text should be enabled. After installation, the default value is `True`. This means that you can select a member by clicking the checkbox and the text next to the checkbox. If you change the parameter value to `False`, you can only select a member by clicking the checkbox.

EnforceDatePickerForCalendarDayVariable

Setting and Setting Values	Setting Description
`EnforceDatePickerForCalendarDayVariable`= `true` or `false` (default value)	You use this setting to specify whether the date picker for any variable of value type calendar / day should be enabled. After installation, the default value is `False`. This means that the date picker is not enabled and the dates are displayed in a flat list. Dates that are displayed in a flat list, are fetched from back-end and validated in Analysis. This could take longer than using the date picker. If you change the parameter value to `True`, the date picker is enabled. It is shown directly without fetching the date values from back-end. A validation does not take place and it is assumed that the selected date is valid.

FetchMemberLimit

Setting and Setting Values	Setting Description
`FetchMemberLimit`= `1000` (default value) or any integer value	You use this setting to define the maximum number of members displayed in the *Filter by Member* dialog box for selection. If you filter on a dimension that contains more members than defined here, you only see the currently selected members (but you can search for all members) and you get the information that there are more members available. The default value is `1000`. This means that up to 1000 members will be displayed. You can enter any integer value for this setting. You can also define the maximum number of members in the user settings in Analysis.

PasteMemberParsingOptions

Setting and Setting Values	Setting Description
`PasteMemberParsingOptions`= `All` (default value) or `SingleMembers`	You use this setting to specify how signs like the minus sign (-) are interpreted when using the options 'Paste from Clipboard' and 'Paste from File' in the filter by member dialog. The default value is `All`. This means that values with a minus sign, for example 'abc-xyz', are interpreted as ranges. If you change the parameter value to SingleMember, the example 'abc-xyz' will be interpreted as one single member with the name 'abc-xyz'. If you want to define a range with this parameter value, you can use spaces: abc - xyz. For more information about using signs, see SAP Note 2422924.

PropagateSelectionInStructures

Setting and Setting Values	Setting Description
`PropagateSelectionInStructures`= `true` or `false` (default value)	You use this setting to define the behavior of hierarchical structures in the filter dialog box. In characteristic hierarchies the selection of a node leads to the selection of all its children and vice versa. For hierarchical structures, selection of a node is independent to the selection of its children in the filter dialog box. This is the behavior for the default value `False`. If you change the value to `True`, hierarchical structures will behave like characteristic hierarchies in the filter dialog box.

SearchFetchMemberLimit

Setting and Setting Values	Setting Description
`SearchFetchMemberLimit=10000` (default value) or any integer value	You use this setting to define the maximum number of members displayed in the *Filter by Member* dialog as result for a search. The default value is `10000`. This means that up to 10000 members will be displayed. You can enter any integer value for this setting. If the result contains more members than defined here, you get an information in the dialog.

UseSeparateDisplaySettingsForFilterDialog

Setting and Setting Values	Setting Description
`UseSeparateDisplaySettingsForFilterDialog`= `true` or `false` (default value)	In Analysis, the filter dialog uses the same display settings as the crosstab when you open the filter dialog for the first time. For example, if the members of a dimension are shown as Key and Text in the crosstab and the filter dialog is opened on that dimension, the filter dialog will display the members also with Key and Text. You can change the display settings for the members in the filter dialog and if the dialog is closed and opened again later in the session it will show the last used display settings independent from what is currently set in the crosstab. But if the workbook has been saved and closed and is opened again, the filter dialog will again take the display settings from the crosstab. You use this setting to specify whether the display settings defined in the filter dialog should be saved with the workbook. After installation, the default value is `False`. This means that the display settings for the filter dialog are not saved with the workbook. If you change the parameter value to `True`, the display settings for the filter dialog are saved with the workbook.

3.4.21 TableDesignConfiguration

In the configuration section (configSection) *TableDesignConfiguration*, you can find the following settings (section name).

UseLegacyModeForFormulaContext

Setting and Setting Values	Setting Description
`UseLegacyModeForFormulaContext`= `true` or `false` (default value)	You use this setting to specify the mode for creating formulas with Table Design. When you create a formula with Table Design, only the inner dimensions defining a cell are used for the context, the column and the nearest dimension member ,for example. If the dimension member appears several times in the inner dimension, the formula is applied several times in the table. In earlier Analysis versions, all dimension members that define the context of a cell were part of the formula and not only the innermost one. The default value is `False`. This means that only the innermost dimension is part of the context for the formula. If you change the value to `True`, the earlier behavior is applied and all dimension members of a cell are used to define the context for the formula.

3.4.22 TaskPaneConfiguration

In the configuration section (configSection) *TaskPaneConfiguration*, you can find the following settings (section name).

AllowOverwritingOfDimensionNames

Setting and Setting Values	Setting Description
`AllowOverwritingOfDimensionNames`= `true` (default value) or `false`	You use this setting to specify whether users are allowed to overwrite and change the name of dimensions in the property view in the design panel. The default value is `True`. This means that users can overwrite the name of dimensions. If you change the parameter value to `False`, users can no longer overwrite dimension names in the property view.

AllowOverwritingOfStrutureMemberNames

Setting and Setting Values	Setting Description
`AllowOverwritingOfStrutureMemberNames=true` (default value) or `false`	You use this setting to specify whether users are allowed to overwrite and change the name of structure members in the property view in the design panel. Structure members are single measures and attributes. The default value is `True`. This means that users can overwrite the name of members. If you change the parameter value to `False`, users can no longer overwrite member names in the property view.

SynchronizeRuleEditorWithCrosstab

Setting and Setting Values	Setting Description
`SynchronizeRuleEditorWithCrosstab=true` (default value) or `false`	You use this setting to specify whether a table design rule is highlighted in the design panel when you select the cell or line in the crosstab containing the rule. The default value is `True`. This means that the rule is highlighted in the design panel. If you change the parameter value to `False`, the rules will not be highlighted in the design panel.

TaskPaneDockPosition

Setting and Setting Values	Setting Description
`TaskPaneDockPosition=1` (default value)	You use this setting to define where the design panel should be inserted. The default value is `1`. This means that the design panel is inserted on the right. You can change the parameter to `2` to insert it on the left, to `3` to insert it on the top, or to `4` to insert it at the bottom. If you change the parameter to `0`, the design panel is free-floating.

TaskPaneHeight

Setting and Setting Values	Setting Description
`TaskPaneHeight`= `975` (default value)	You use this setting to define the height of the design panel. The height is only relevant if the design panel is inserted at the top or bottom. The default value is `975` points. Note that this setting can only be maintained by an administrator in the file system under C:\ProgramData\SAP\Cof.

TaskPaneWidth

Setting and Setting Values	Setting Description
`TaskPaneWidth`= `498` (default value)	You use this setting to define the width of the design panel. The width is only relevant if the design panel is inserted on the left or right. The default value is `498` points. Note that this setting can only be maintained by an administrator in the file system under C:\ProgramData\SAP\Cof.

3.4.23 UiCommonConfiguration

In the configuration section (configSection) *UiCommonConfiguration*, you can find the following settings (section name).

AllowInsecureConnections

Setting and Setting Values	Setting Description
`AllowInsecureConnections`= `YesNo`, `NoInsecure`, `Prompt` (default value) or `PromptInsecure`	You use this setting to specify which options should be available in Analysis if a connection isn't secure. The setting also checks if a connection isn't reachable (timeout exceptions, proxy issues, 404 http status code) or undefined (unauthorized or other exceptions). A dialog could be displayed to decide to continue with an insecure connection or cancel the connection. The default value is `Prompt`. This means that the dialog will be displayed, and the option *Continue* is enabled for all connections. If you change the parameter value to `Yes`,, Analysis will establish all, even insecure, connections without showing the dialog. If you change the parameter value to `No`, the dialog will be displayed for secure connections. All other connections are blocked. If you change the parameter value to `NoInsecure`, the dialog will be displayed for not reachable and undefined connections. Insecure connections are blocked. If you change the parameter value to `PromptInsecure`, the dialog will ask for insecure connections. Not reachable and undefined connections are blocked.

CheckInfoAreasAuthorization

Setting and Setting Values	Setting Description
`CheckInfoAreasAuthorization`= `true` or `false` (default value)	In BW systems, you can define with authorization object S_RS_FOLD if InfoAreas should be displayed in dialogs of the BEx tools. If it is defined in a BW system that the InfoAreas are not displayed, they are still displayed in the Analysis Open Data Source dialog. You use this setting to specify whether the areas should be displayed in Analysis. The default value is `False`. This means that the areas are displayed in Analysis. If you change the parameter value to `True`, the areas are no longer displayed in the Analysis Open Data Source dialog.

EnableWarningForFailedSnc

Setting and Setting Values	Setting Description
`EnableWarningForFailedSnc`= `true` (default value) or `false`	If Analysis can't establish a secure connection (SNC) to the selected BW system, a dialog could be displayed where you can choose if you want to • Try again with SNC to establish a secure connection • Try without SNC to establish an insecure connection • Cancel without establishing a connection Note that the setting `AllowInsecureConnections` influences the options in this dialog. If this setting is set to `Yes` or `Prompt`, the option Try without SNC will be enabled. If it is set to `No`, the option Try without SNC will be disabled. You use this setting to specify whether the dialog that a secure connection couldn't be established should be displayed. The default value is `True`. This means that the dialog will be displayed. If you change the parameter value to `False`, the dialog won't be displayed and Analysis tries to establish an insecure connection automatically, even if the setting `AllowInsecureConnections` is set to `No`. Note that this setting can only be maintained by an administrator in the file system under C:\ProgramData\SAP\Cof.

ForceFullyCompoundedKeys

Setting and Setting Values	Setting Description
`ForceFullyCompoundedKeys`= `true` or `false` (default value)	You use this setting to specify whether the display of the fully compounded keys for members should be forced when the compoundment ancestors are fixed. The default value is `False`. This means that the partially compounded keys are displayed. If you change the parameter value to `True`, the display of the fully compounded keys is forced.

ForceRefreshConnectionInfo

Setting and Setting Values	Setting Description
`ForceRefreshConnectionInfo`= `true` or `false` (default value)	You use this setting to specify whether the SNC (Secure Network Communications) information is read from the launcher file or from the local SAPUILandscape.xml installation. The default value is `False`. This means that the SNC information is read from the launcher file. If you change the parameter value to `True`, only the SNC information in the local SAPUILandscape.xml is used. Therefore we do not recommend changing this setting to value `True`.

HierarchyCollapsePaddingCols

Setting and Setting Values	Setting Description
`HierarchyCollapsePaddingCols`= `" "` (default value)	You use this setting to specify the indent in columns when the node is expanded with space characters. The default value is `" "` (five spaces). You can enter any number of spaces here to define the indent. The value for this setting is only applied in Analysis if setting `UseAdvancedHierarchySettings` is activated with value True.

HierarchyCollapsePaddingRows

Setting and Setting Values	Setting Description
`HierarchyCollapsePaddingRows= "  "` (default value)	You use this setting to specify the indent in rows when the node is expanded with space characters. The default value is `"  "` (five spaces). You can enter any number of spaces here to define the indent. The value for this setting is only applied in Analysis if setting `UseAdvancedHierarchySettings` is activated with value True.

HierarchyCollapseSymbolCols

Setting and Setting Values	Setting Description
`HierarchyCollapseSymbolCols= [-]` (default value)	You use this setting to specify the character to be used as a symbol for collapsing hierarchy nodes in columns. The default value is `[-]`. You can use Unicode codepoints to specify other symbols, e.g. \u25bc for a black down-pointing triangle. The value for this setting is only applied in Analysis if setting `UseAdvancedHierarchySettings` is activated with value True.

HierarchyCollapseSymbolRows

Setting and Setting Values	Setting Description
`HierarchyCollapseSymbolRows= [-]` (default value)	You use this setting to specify the character to be used as a symbol for collapsing hierarchy nodes in the rows. The default value is `[-]`. You can use Unicode codepoints to specify other symbols, e.g. \u25bc for a black down-pointing triangle. The value for this setting is only applied in Analysis if setting `UseAdvancedHierarchySettings` is activated with value True.

HierarchyExpandPaddingCols

Setting and Setting Values	Setting Description
`HierarchyExpandPaddingCols=" "` (default value)	You use this setting to specify the indent in columns when the node is expanded with space characters. The default value is `" "` (five spaces). You can enter any number of spaces here to define the indent. The value for this setting is only applied in Analysis if setting `UseAdvancedHierarchySettings` is activated with value True.

HierarchyExpandPaddingRows

Setting and Setting Values	Setting Description
`HierarchyExpandPaddingRows=" "` (default value)	You use this setting to specify the indent in rows when the node is collapsed with space characters. The default value is `" "` (five spaces). You can enter any number of spaces here to define the indent. The value for this setting is only applied in Analysis if setting `UseAdvancedHierarchySettings` is activated with value True.

HierarchyExpandSymbolCols

Setting and Setting Values	Setting Description
`HierarchyExpandSymbolCols=[+]` (default value)	You use this setting to specify the character to be used as a symbol for expanding hierarchy nodes in the columns. The default value is `[+]`. You can use Unicode codepoints to specify other symbols, e.g. \u25bc for a black down-pointing triangle. The value for this setting is only applied in Analysis if setting `UseAdvancedHierarchySettings` is activated with value True.

HierarchyExpandSymbolRows

Setting and Setting Values	Setting Description
`HierarchyExpandSymbolRows`= `[+]` (default value)	You use this setting to specify the character to be used as a symbol for expanding hierarchy nodes in the rows (e.g. \u25ba). The default value is `[+]`. You can use Unicode codepoints to specify other symbols, e.g. \u25bc for a black down-pointing triangle. The value for this setting is only applied in Analysis if setting `UseAdvancedHierarchySettings` is activated with value True.

MessagePopupSeverity

Setting and Setting Values	Setting Description
`MessagePopupSeverity`= `""` (default value), `Critical`, `Error`, `Warning` or `Success`	You use this setting to specify whether messages should be displayed in a pop-in or in a dialog box, depending on the message severity. `Critical` is the most severe category, `Success` is the least severe. The severity `Success` corresponds to severity `Information` in Analysis. The default value is `""`. This means that after the installation no value is defined and only messages with severity Critical are displayed in a dialog box. Messages with lower severities (Error, Warning or Success) are displayed in a pop-in dialog. You can change the parameter value to `Error`, `Warning` or `Success`. If you select a severity, all messages are displayed which have this severity or higher. If you enter `Warning`, for example, all messages with severity `Warning`, `Error` and `Critical` are displayed in a dialog box. Messages with severity `Success` are displayed in a pop-in dialog.

SapGetDataClientSideValidationOnly

Setting and Setting Values	Setting Description
`SapGetDataClientSideValidationOnly`= `true` or `false` (default value)	When working with the function SAPGetData, you use this setting to specify whether provided member values should be validated in the backend. As the backend validation causes additional RFC calls, it could improve the performance if the backend validation is not executed. The default value is `False`. This means that provided member values that are not available in the crosstab are validated in the backend. If it is a valid member, SAPGetData returns an empty string. And if the member is invalid, SAPGetData returns the error #VALUE!. If you change the parameter value to `True`, there will be no backend validation for the members that are not available in the crosstab. SAPGetData returns the error #VALUE! for valid and invalid members.

ShowSuppressedMessages

Setting and Setting Values	Setting Description
`ShowSuppressedMessages`= `true` or `false` (default value)	You use this setting to specify whether messages that are suppressed with API method *SAPSuppressMessage* should be displayed. The default value is `False`. This means that the suppressed messages are not displayed. If you change the parameter value to `True`, the messages that are suppressed with API method *SAPSuppressMessage* will be displayed.

TextKeyDisplay

Setting and Setting Values	Setting Description
`TextKeyDisplay`= `Default` (default value), `TextKey`, `KeyText`, `Key` or `Text`	You use this setting to define the member display in the design panel. The default value is `Default`. This means that the selection made in the query designer defines the member display. You can change the parameter value to one of the listed values, for example `Key`.

UseAdvancedHierarchySettings

Setting and Setting Values	Setting Description
`UseAdvancedHierarchySettings`= `true` or `false` (default value)	You use this setting to activate the layout improvement for hierarchies. When using hierarchies in Analysis that have hierarchy nodes that span across multiple lines (most likely structures where the elements can contain line wraps) the lines are not indented. The resulting layout of the crosstab doesn't look very pleasant. Independent form the missing indent for wrapped lines the default symbols for expanding and collapsing hierarchy nodes (also known as expander) can only be displayed as [+] and [-]. This is only relevant for hierarchical structures that have members with texts contaning a new line character (e.g. \n, \r or a combination of the two) that is displayed as a line break. You can fix the missing indent by prefixing the lines after the line wrap with space characters. This will improve the layout. But note that as the text in the cell that contains the hierarchy node will be changed by this action Excel formulas that reference the text might be broken. The default value is `False`. This means that the layout improvement is not enabled. If you change the parameter value to `True`, the layout improvement will be enabled.

3.4.24 UsageConfiguration

In the configuration section (configSection) *UsageConfiguration*, you can find the following settings (section name).

AoTenantSite

Setting and Setting Values	Setting Description
`AoTenantSite`= `""` (default value)	This setting is used for Usage Tracking. After installation, the default value is `""`. We recommend not changing the value. You can deactivate Usage Tracking for Analysis with setting `TrackUsage`.

ContinousUsageDataUploadIntervalInDays

Setting and Setting Values	Setting Description
`ContinousUsageDataUploadIntervalInDays`= `20` (default value)	This setting is used for Usage Tracking. After installation, the default value is `20`. We recommend not changing the value. You can deactivate Usage Tracking for Analysis with setting `TrackUsage`.

FailedPingCounter

Setting and Setting Values	Setting Description
`FailedPingCounter`= `0` (default value)	This setting is used for Usage Tracking. After installation, the default value is `0`. We recommend not changing the value. You can deactivate Usage Tracking for Analysis with setting `TrackUsage`.

LastContinousUsageDataUpload

Setting and Setting Values	Setting Description
`LastContinousUsageDataUpload`= `01.01.0001` (default value)	This setting is used for Usage Tracking. After installation, the default value is `01.01.0001`. We recommend not changing the value. You can deactivate Usage Tracking for Analysis with setting `TrackUsage`.

LastPeriodicUsageDataUpload

Setting and Setting Values	Setting Description
`LastPeriodicUsageDataUpload`= `200000` (default value)	This setting is used for Usage Tracking. After installation, the default value is `200000`. We recommend not changing the value. You can deactivate Usage Tracking for Analysis with setting `TrackUsage`.

TrackUsage

Setting and Setting Values	Setting Description
`TrackUsage`= `true` (default value) or `false`	You use this setting to define whether Usage Tracking for Analysis should be enabled. After installation, the default value is `True`. This means that Usage Tracking is active. If you change the parameter value to `False`, Usage Tracking for Analysis is deactivated.

UsageDataPauseDate

Setting and Setting Values	Setting Description
`UsageDataPauseDate`= `01.01.0001` (default value)	This setting is used for Usage Tracking. After installation, the default value is `01.01.0001`. We recommend not changing the value. You can deactivate Usage Tracking for Analysis with setting `TrackUsage`.

3.4.25 UtilitiesConfiguration

In the configuration section (configSection) *UtilitiesConfiguration*, you can find the following settings (section name).

AbapTrace

Setting and Setting Values	Setting Description
`AbapTrace`= `1` or `0` (default value)	You use this setting to activate the trace tool environment of SAP BW. The default value is `0`, meaning that it is deactivated. With a value of `1`, you can activate this setting. You can also activate the setting in the Support Settings dialog with setting *Enable BW Server Tracing*. For more information, see Troubleshooting in Analysis [page 185].

AlwaysDoApplicationSteps

Setting and Setting Values	Setting Description
`AlwaysDoApplicationSteps`= `true` or `false` (default value)	You use this setting to specify when the statistics are written in table RSDDSTAT_OLAP. The default value is `False`. This means that the statistics are written when Analysis closed. If Analysis is terminated unexpectedly, e.g. by time out on a citrix server, the entries are never written to RSDDSTAT_OLAP. If you change the parameter value to `True`, the entries are written after each action executed in Analysis without the need to close Analysis. Note that this might have a negative impact on the performance.

BexAdvancedMode

Setting and Setting Values	Setting Description
`BexAdvancedMode`= `true` or `false` (default value)	You use this setting to specify whether the 'Use Currency Translation from Query Definition' checkbox should be available in the currency translation dialog for measures. After installation, the default value is `False`. This means that the checkbox is not available. If you change the parameter value to `True`, the checkbox is displayed in the dialog.

CancelPopupDelay

Setting and Setting Values	Setting Description
`CancelPopupDelay`= 5 seconds (default value) or any integer value	You use this setting to specify after how many seconds the cancel dialog should be displayed when a data update is requested from the server (BW and HANA) and the crosstab is redrawn. This could be inserting a data source or navigating through the data, for example filtering data or adding dimensions to the crosstab. The default value is 5 seconds. This means that the cancel dialog will appear after 5 seconds. You can enter any integer value for this setting. If the cancel dialog (Fetching data from server) is displayed, you have two options: • You press *Cancel* to cancel the server request. In the following *Messages* dialog, you can select *Restart* to go back to the workbook and refresh all the data sources in the workbook. Or you select *Close* to go back to the workbook and the data sources in the workbook are disconnected. Note that the refresh of all data sources that is started automatically with the option *Restart* could take very long. • You do not cancel the server request. The dialog will disappear automatically when the server request is completed.

CheckIfWorkbookIsInplaceWhenWindowIsActivated

Setting and Setting Values	Setting Description
`CheckIfWorkbookIsInplaceWhenWindowIsActivated`= `true` (default value) or `false`	This setting might only be relevant if you use the add-in with Microsoft Excel 2010 and at least two workbooks are used at the same time. Please see SAP Note 2463180 for more information.

EnableImprovedAddInCompatibility

Setting and Setting Values	Setting Description
`EnableImprovedAddInCompatibility`= `true` or `false` (default value)	If you use different Microsoft Office add-ins at the same time, you might encounter Microsoft Office crashes. The reason for this is that many of the add-ins use the Window Procedure Subclassing technique. You can improve the compatibility with other add-ins with this setting. It reduces the subclassing in Analysis. Note that you cannot use drag and drop to add or delete a filter in the crosstab when the setting is active. The default value is `false`. This means that the subclassing is not reduced and you can use drag and drop in the crosstab. If you change the parameter value to `True`, the subclassing is reduced to improve the compatibility with other add-ins. As a consequence, you cannot use drag and drop in the crosstab. For more information, see SAP Note 2750514

Profiling

Setting and Setting Values	Setting Description
`Profiling`= `true` or `false` (default value)	You use this setting to activate the query runtime statistics of SAP BW. For more information, see Query runtime statistics [page 157]. You can also activate the setting in the Support Settings dialog with setting *Enable Workbook Profiling*. For more information, see Troubleshooting in Analysis [page 185].

ShowConvertToForumulaInToolsGroup

Setting and Setting Values	Setting Description
`ShowConvertToForumulaInToolsGroup= true` (default value) or `false`	This setting is used in Analysis with minor versions ≤ 3 to specify whether the *Convert To Formula* icon should be displayed in the ribbon. As of release 2.4, you customize the ribbon with the *Customize User Interface* dialog. Therefore, we recommend to use the *Customize User Interface* dialog to define the options displayed in the ribbon. **i Note** When switching to a version greater than 3, for example Analysis 2.4, Analysis takes your definition from this setting. If the parameter value for this setting was `True`, the *Convert To Formula* icon is displayed in the standard profile for the ribbon. If it was `False`, it is not displayed.

ShowCreateWebApplicationInToolsGroup

Setting and Setting Values	Setting Description
`ShowCreateWebApplicationInToolsGroup= true` or `false` (default value)	This setting is used in Analysis with minor versions ≤ 3 to specify whether the *Create Web Application* icon should be displayed in the ribbon. As of release 2.4, you customize the ribbon with the *Customize User Interface* dialog. Therefore, we recommend to use the *Customize User Interface* dialog to define the options displayed in the ribbon. **i Note** When switching to a version greater than 3, for example Analysis 2.4, Analysis takes your definition from this setting. If the parameter value for this setting was `True`, the *Create Web Application* icon is displayed in the standard profile for the ribbon. If it was `False`, it is not displayed.

ShowPlanningToolbar

Setting and Setting Values	Setting Description
`ShowPlanningToolbar`= `true` or `false` (default value)	This setting is used in Analysis with minor versions ≤ 3 to specify whether the planning group should be displayed in the ribbon. As of release 2.4, you customize the ribbon with the *Customize User Interface* dialog. Therefore, we recommend to use the *Customize User Interface* dialog to define the options displayed in the ribbon. **i Note** When switching to a version greater than 3, for example Analysis 2.4, Analysis takes your definition from this setting. If the parameter value for this setting was `True`, the planning group is displayed in the standard profile for the ribbon. If it was `False`, it is not displayed.

ShowSsoLogonDialog

Setting and Setting Values	Setting Description
`ShowSsoLogonDialog`= `true` or `false` (default value)	You use this setting to specify whether the *Logon* dialog box should be displayed when using SSO with the SAP BW platform. The default value is `False`. This means that the logon dialog box is not displayed. If you change the parameter value to `True`, the logon dialog box is displayed and the user can change the client and the logon language. You can also enable this setting in the Advanced Settings dialog in Analysis.

ShowSsoLogonDialogBip

Setting and Setting Values	Setting Description
`ShowSsoLogonDialogBip`= `true` or `false` (default value)	You use this setting to specify whether the *Logon* dialog box should be displayed when using SSO with the BI platform. The default value is `False`. This means that the logon dialog box is not displayed. If you change the parameter value to `True`, the logon dialog box is displayed and the user can select one of the available BI platforms and change the logon language. You can also enable this setting in the Advanced Settings dialog in Analysis.

SupportAutomatedOffice

Setting and Setting Values	Setting Description
`SupportAutomatedOffice`= `true` or `false` (default value)	You use this setting to specify whether the Analysis Plug-in should be supported if the Microsoft Office tools are running in embedded mode (also called automated mode). The default value is `False`. This means that the Analysis Plug-in is not supported. If you change the parameter value to `True`, the Analysis Plug-in will be supported. This setting is only evaluated if you set `SupportEmbeddedMode` in the `Cof_app.config` file to `True`.

TimerDialogDisplayTime

Setting and Setting Values	Setting Description
`TimerDialogDisplayTime`= `60` (default value) or any integer value.	With the setting `TimerSetPlanQueriesToDisplayMode`, you can define the time Analysis is waiting to set planning queries from change mode to display mode. Before the switch to display mode, a dialog is shown to inform the user. You use this setting to specify the time in seconds the information dialog is displayed before the queries are set to display mode. The default value is `60`. This means that the dialog will be displayed for 60 seconds. A user can cancel the dialog and the queries stay in change mode. If the dialog isn't canceled, the queries will be set to display mode when the defined time is over. You can enter any integer value for this setting to define the time in seconds.

UndoStackSize

Setting and Setting Values	Setting Description
`UndoStackSize`= `10` (default value)	You use this setting to specify the number of steps that can be undone or redone with the Analysis *Undo/Redo* function. The default value is `10`.

3.4.26 VariableConfiguration

In the configuration section (configSection) *VariableConfiguration*, you can find the following settings (section name).

AllowFlatPresentationForHierarchyNodeVariables

Setting and Setting Values	Setting Description
`AllowFlatPresentationForHierarchyNodeVariables`= `true` or `false` (default value)	The default value is `False`. This means that the first hierarchy out of the characteristic hierarchies will be assigned to the hierarchy variable and the F4 help for the hierarchy node variable is based on this hierarchy. If you set the parameter value to `True`, you get a flat list of members in the member selector when no hierarchy variable is selected.

AllowLiteralMemberForNodesInHana

Setting and Setting Values	Setting Description
`AllowLiteralMemberForNodesInHana`= `true` or `false` (default value)	You open a workbook containing a HANA data source that has a dimension filtered on hierarchy elements. You observe a high amount of HTTP calls to HANA for retrieving the members of the hierarchy. You use this setting to specify whether the number of calls should be reduced. The default value is `False`. This means that the number of calls is not reduced. If you set the parameter value to `True`, the number of calls will be reduced.

AllowLiteralMemberSelectionsInVariablesHana

Setting and Setting Values	Setting Description
`AllowLiteralMemberSelectionsInVariablesHana`= `true` (default value) or `false`	You use this setting to specify whether the values you enter for a variable, are validated against the HANA system or not. The default value is `True`. This means that the values are not validated against the HANA system, but Analysis still checks if the format and data type are correct. Not validating the values may improve the performance in Analysis. If you set the parameter value to `False`, Analysis validates the entered values against the HANA system.

DisplayCompoundAsKeys

Setting and Setting Values	Setting Description
`DisplayCompoundAsKeys`= `true` or `false` (default value)	You use this setting to define the display of variables in the summary view of the prompting dialog box. The default value is `False`. This means that the variables are displayed as display strings. For compound characteristics, the display string may not be unique. To display compound characteristics with the key instead of the display string, you can set the parameter value to `True`.

MergeVariables

Setting and Setting Values	Setting Description
`MergeVariables`= `true` or `false` (default value)	You use this setting to specify whether or not the *Merge Variables* check box in the *Components* tab in the design panel is selected when you create a new workbook. After installation, the default value is `False`. This means that the check box is not selected when you create a new workbook. You can change this manually by selecting the check box for single workbooks or setting the parameter value to `True`. The check box is then always selected when you create a new workbook.

OperatorContainsPattern

Setting and Setting Values	Setting Description
`OperatorContainsPattern`= `true` or `false` `(default)`	You use this setting to define whether the operators Contains Pattern (CP) and Excludes Pattern (!CP) should be enabled for prompting. The default value is `False`. This means that the contains pattern operators cannot be used for prompting. To enable the contains pattern operators for prompting, you can set the parameter value to `True`.

PreferLeavesOverNodesInInputString

Setting and Setting Values	Setting Description
`PreferLeavesOverNodesInInputString`= `true` (default value) or `false`	You use this setting to define whether an input string should select a leaf or node if both have the same string. The default value is `True`. This means that the leaf will be selected.

PromptWhenInsertingDataSource

Setting and Setting Values	Setting Description
`PromptWhenInsertingDataSource`= `true` (default value) or `false`	You use this setting to define the behavior of the prompting dialog box when inserting a new data source. After installation, the default value is `True`. This means that the prompting dialog box always appears automatically when you insert a data source containing variables. If you set this parameter to `False`, the prompts dialog only appears when the data source contains mandatory variables.

ReResolveDependentHierarchyNodeVariables

Setting and Setting Values	Setting Description
`ReResolveDependentHierarchyNodeVariables` = `true` or `false (default)`	When entering values for a hierarchy node variable in the prompting dialog where the hierachy is set via a hierarchy variable, the hierachy node variable can have a wrong value if entered before the hierarchy variable. Re-resolving of dependent hierarchy node variables can be necessary because the input string is parsed and processed regardless of the processing order. You use this setting to define whether re-resolving of the dependent hierarchy node variables should be enabled. The default value is `False`. This means that the re-resolving is disabled. If you set the parameter value to `True`, the dependent hierarchy node variables will be re-resolved before the variable values are finally submitted.

ReverseVariableProcessingOrderForHanaFromOldXml

Setting and Setting Values	Setting Description
`ReverseVariableProcessingOrderForHanaFromOldXml`= `true` or `false` (default value)	This setting is relevant for workbooks saved with Analysis 2.7 SP0 or lower. You use this setting to specify whether the variable order will be reversed during the initial processing for all workbooks that are saved with an Analysis version 2.7 SP0 or lower. The default value is `False`. This means that the variable order will not be reversed. This might have a negative effect on performance. If you change the parameter value to `True`, the variable order will be reversed. Independent of the setting value when saving the workbook, it will be serialized in the correct order and with a new document version. The new document version will ensure that the variable order will not be reversed again when you open the workbook the next time.

ShowDSVariantsForWorkbooksWithOneDS

Setting and Setting Values	Setting Description
`ShowDSVariantsForWorkbooksWithOneDS`= `true` or `false` (default value)	You use this setting to specify the mode for the prompting dialog when you open a document from the BW server that contains exactly one data source. The default value is `False`. This means that the prompting dialog is opened in document mode. If you change the parameter value to `True`, the prompting dialog is opened in data source mode.

TextKeyDisplayForPrompts

Setting and Setting Values	Setting Description
`TextKeyDisplayForPrompts`= `Default` (default value) or `KeyText`	You use this setting to define the prompts display in the *Specify Value for Prompts* area in the prompts dialog. The default value is `Default`. This means that the prompts are displayed with their names (text). If you can change the parameter value to`KeyText`, the technical names are displayed additionally. Note that this setting can only be maintained by an administrator in the file system under C:\ProgramData\SAP\Cof. Users can change the display in the prompts dialog by selecting/deselecting *Show Technical Names* in the *Display* list box.

UseKeyForHierarchySelection

Setting and Setting Values	Setting Description
`UseKeyForHierarchySelection`= `true` or `false` (default value)	You use this setting to specify whether the selection of hierarchy variables is text-based or key-based in the prompts dialog. The default value is `False`. This means that selection of hierarchy variables in the dialog is text-based: • The texts are placed in the first column, the keys in the second column. • The list of available hierarchies is sorted by text. • The autocompletion of the textbox within the dropdown uses texts. If you change the parameter value to `True`, the selection of hierarchy variables in the dialog is key-based: • The keys are placed in the first column, the texts in the second column. • The list of available hierarchies is sorted by key. • The autocompletion of the textbox within the dropdown uses keys.

UseQueryVariantsForViews

Setting and Setting Values	Setting Description
`UseQueryVariantsForViews`= `true` or `false` (default value)	You use this setting to specify whether you see the variants of the view or the variants of the query used for the view in the prompts dialog. The default value is `False`. This means that you will see the variant of the view in the prompts dialog. If you change the parameter value to `True`, you will see the variants of the query used for the view the prompts dialog.

3.4.27 WaterfallChartConfiguration

In the configuration section (configSection) *WaterfallChartConfiguration*, you can find the following settings (section name).

RGBValueColumns

Setting and Setting Values	Setting Description
`RGBValueColumns`= `#808080` (default value)	You use this setting to define the color for the columns that represent the start and end values. The default value is `#808080`. This means that the columns display in grey.

RGBValueNegative

Setting and Setting Values	Setting Description
`RGBValueNegative`= `#FF000C` (default value)	You use this setting to define the color for the negative delta values. The default value is `#FF000C`. This means that the negative values display in red.

RGBValuePositive

Setting and Setting Values	Setting Description
`RGBValuePositive`= `#90CE00` (default value)	You use this setting to define the color for the positive delta values. The default value is `#90CE00`. This means that the positive values display in green.

3.4.28 WorkbookConversionConfiguration

In the configuration section (configSection) *WorkbookConversionConfiguration*, you can find the following settings (section name).

ConversionType

Setting and Setting Values	Setting Description
`ConversionType`= `0` (default value), `1` or `2`	You use this setting to define which objects of a BEx workbook should be converted. The default value for this parameter is `0`. This means that all objects are converted. If you set the parameter value to `1`, data sources and crosstabs are converted. If you set the value to `2`, only data sources are converted.

EnableAnalysisViewConversion

Setting and Setting Values	Setting Description
`EnableAnalysisViewConversion`= `true` or `false` (default value)	You use this setting to define whether the *Conversion* tab with the *Analysis View Migration* setting in the settings dialog is displayed. After installation, the default value is `False`. Nethertheless, the conversion tab with the *Analysis View Migration* is visible as long as the setting `EnableWorkbookConversion` is set to `true`. If you change the parameter value to `True`, the *Conversion* tab is enabled and the *Analysis View Migration* is available even if the setting `EnableWorkbookConversion` is set to `false`.

EnableWorkbookConversion

Setting and Setting Values	Setting Description
`EnableWorkbookConversion`= `true` (default value) or `false`	You use this setting to define whether the conversion of BEx workbooks is enabled. The settings for the BEx workbooks conversion are available on the *Conversion* tab in the settings dialog. After installation, the default value is `True`. This means that conversion tab with the conversion settings and the menu entry for conversion are visible in Analysis. If you change the parameter value to `False`, the menu entry and conversion tab are hidden, and the user is not able to convert BEx workbooks. If you enable the setting `EnableAnalysisViewConversion`, the conversion tab with the conversion settings is visible in Analysis, but the menu entry for BEx workbook conversion is hidden.

LogType

Setting and Setting Values	Setting Description
`LogType`= `0` (default value), `1` or `2`	You use this setting to define whether a log should be created during conversion. The default value for this parameter is `0`. This means that no log will be created. If you set the parameter value to `1`, a log is created and displayed on a workbook sheet. If you set the value to `2`, a log is created and stored on a hidden workbook sheet.

RefreshType

Setting and Setting Values	Setting Description
`RefreshType`= `0` (default value), `1` or `2`	You use this setting to define whether the workbook should be refreshed after conversion. The default value of this parameter is set to `0`. This means that the workbook is always refreshed. If you set the parameter value to `1`, the workbook is not refreshed. If you set the value to `2`, the workbook is refreshed after conversion if the corresponding properties are selected on the components tab in the design panel.

ShowSaveDialog

Setting and Setting Values	Setting Description
`ShowSaveDialog`= `true` or `false` (default value)	You use this setting to specify whether the save dialog box should be displayed after a workbook conversion. The default value is `False`, meaning that the save dialog box will not display after conversion. If you change the parameter value to `True`, the save dialog box will be displayed after conversion.

3.4.29 WorkspaceConfiguration

In the configuration section (configSection) *WorkspaceConfiguration*, you can find the following settings (section name).

EnableWorkspace

Setting and Setting Values	Setting Description
`EnableWorkspaces`= `true` (default value) or `false`	You use this setting to define whether the workspace options should be enabled. After installation, the default value is `True`. This means that the workspace options are enabled and the menu entries are visible in the ribbon. If you change the parameter value to `False`, the menu entries are not displayed in the ribbon, and the user is not able to use the workspace options.

3.4.30 XlIConfiguration

In the configuration section (configSection) *XlIConfiguration*, you can find the following settings (section name).

AlwaysCallSheetIdUsingXlIntl

Setting and Setting Values	Setting Description
`AlwaysCallSheetIdUsingXlIntl`= `true` or `false` (default value)	This setting is only relevant if you use a Microsoft Office version below Office 365 version 2101. You use this setting to specify that an active Analysis won't cause any display errors in Excel when you work with VBA to create a new workbook and change the list separators. After installation, the default value is `False`. This means that the changes for the list separators aren't adapted. If you change the parameter value to `True`, the changed list separators are displayed correctly. For more information, see SAP Note 2885146.

3.5 Settings for the BPC Plug-in

The following table describes the BPC Plug-in file system settings that you can define. The settings are delivered in the `Bpc_app.config` file.

For more information about maintaining file system settings, see Maintaining settings in the file system [page 16]

BpcConfiguration

Setting and Setting Values	Setting Description
`KeepAliveTimeoutInSeconds`= `60` (default value)	You use this setting to set the keep-alive value. You set the value to the time interval (in seconds) between each request, so that the session stays alive. We recommend that you enter a value below the value of the server timeout. For example, if the server timeout is set to 1200 seconds, enter the value 900 in this setting. The default value is `60`. This means that the time interval between each request is 60 seconds.
`LastUsedBpfConnections`	This setting lists all the latest connections you have used. This setting is filled automatically and you should not change its value.
`SidePanelWidth`= `250` (default value)	You use this setting to define the width of the *Activity* pane in the BPC plug-in. The default value is 250 points. The value is automatically adapted if a user resizes the width of the pane manually in the application.

3.6 Configuring Files with SAP Setup

Context

You can configure files with a setup tool, for example SAP Setup, to keep your settings definition for upcoming installations. Without such files, the settings definition will be overwritten with the default values during a new installation of Analysis.

Procedure

1. Copy or unzip the installer. If you unzipped the installer, go to Setup folder. If you copied the complete installer, you might need to go to CdMirror first and then to the Setup folder.
2. Go to the documentation at SAPSetup\CdMirror\SAP Setup Guide.pdf.
3. Use NwCreateInstServer to create a folder e.g. "InstServer".
4. In the folder "InstServer", create a folder e.g. "Custom Files" with adapted content, for example Cof_app.config and Ao_app.config.
5. Use InstServer\Setup\NwSapSetupAdmin to configure a package.
   a. It already has product COF imported, because it was created from a COF installer.
   b. Go to package.
   c. Create package.
   d. Select *package* > *package configuration* > *On Installation End* .

      ```
      strSrcFile = NwEngine.Variables.ResolveString("%SapSrcDir%\Custom Files\Cof_app.config")

      strDstFile = NwEngine.Variables.ResolveString("%ALLUSERSPROFILE%\SAP\Cof\Cof_app.config")

      //note: SAPSetup does not know %ProgramData%, but you have to use %ALLUSERSPROFILE% instead.

      NwEngine.Shell.CopyFileEx strSrcFile, strDstFile, vbTrue
      ```

   e. Select the same for On Update End.
6. If you now use InstServer\SetupAll.exe it will install with the upated files.

4 Administration for the Analysis Plug-In

4.1 Supported BI Platforms

SAP Analysis supports the following platforms:

- SAP BusinessObjects Business Intelligence Platform XI 4.2 SP0 or a higher version
- SAP BW
- SAP BW/4HANA

> **i Note**
>
> Microsoft Office documents contain free text fields. These text fields are not intended to store personal data without additional technical or organizational measures to safeguard data protection and privacy.
>
> In order to ensure that analytical data which is personal data and which is retrieved from the servers with Analysis functionality, does not get stored in documents, the Analysis workbook property *Remove Data Before Saving* can be active in those workbooks.
>
> Users can activate the property *Remove Data Before Saving* on the *Components* tab in the design panel.
>
> Administrators can set the file system setting *RemoveDataBeforeSaving* to true to activate the workbook property *Remove Data Before Saving* in the design panel by default.
>
> For more details, see chapter *Data Protection and Privacy* in this guide.

Related Information

SAP BusinessObjects Business Intelligence Platform [page 117]
SAP BW [page 118]
SAP BW/4HANA [page 120]

4.1.1 SAP BusinessObjects Business Intelligence Platform

SAP Analysis supports SAP BusinessObjects Business Intelligence XI 4.2 SP0 or a higher version as platform.

If you use the SAP BusinessObjects Business Intelligence platform with Analysis, Microsoft .NET Framework 4.7.2 must be installed on the client PC.

Usage with the SAP BusinessObjects BI platform

In the Central Management Console (CMC), you have to define connections to your SAP BW system(s). SAP Analysis receives information about the connections in the CMC and establishes direct access to the defined BW systems for data exchange.

Microsoft Excel workbooks and Microsoft PowerPoint files, created with Analysis, are stored in the repository. As of SAP BusinessObjects Business Intelligence platform 4.1, you can save Analysis objects as Analysis Workbook and Analysis Presentation.

Related Information

Creating and managing BW system connections in the BI platform [page 127]

4.1.2 SAP BW

SAP Analysis supports SAP BW as its platform. Using SAP BW as the platform, the Analysis objects are stored in a BW system.

The following functions of Analysis are supported only when using SAP BW as platform. The functions are available as of the listed releases. However, you might be required to implement additional SAP Notes. For more information, see SAP Note 1739153.

Function	7.0 EHP1	7.0 EHP2	7.3	7.3 EHP1	7.40	7.50
SAP BW as platform	SP 11	SP 10	SP 05	SP 01		
Conversion of BEx Workbooks	SP 11	SP 10	SP 05	SP 01		
Launcher	SP 12	SP 12	SP 08	SP 05		
Variants*	SP 12	SP 12	SP 08	SP 05		
Workspaces			SP 07	SP 03		
Caching	SP 18	SP 18	SP 14	SP17	SP 13	
Grouping Members						SP 06
Launching Query Designer			SP 03			SP 06
Launching BW Modeling Tools					SP 16	SP 05
Planning Data**: New Lines						SP 12

Function	7.0 EHP1	7.0 EHP2	7.3	7.3 EHP1	7.40	7.50
Planning Data: Upload Data from a file						SP 12
Formula-Optimized Mode						SP 13

*You can also use this function with lower SP levels. For more information, see SAP Note 1694658.

** To use the new planning functions, some parameters in transaction RSADMIN are required. For more information, see SAP Note 2508938.

Usage with SAP BW

SAP BW systems have to be defined in the SAPUILandscape.xml file in the Windows directory on your local machine. SAP Analysis receives the list of available BW systems in the SAPUILandscape.xml file and establishes direct access to the defined systems for data exchange.

You can also define systems in the `SAPUILandscapeGlobal.xml` file in the Windows directory on your local machine. Therefore, the `SAPUILandscapeGlobal.xml` file must be in the same folder as the `SAPUILandscape.xml` file.

The location of the SAPUILandscape.xml files is usually defined via the options dialog of the SAP Logon that is part of the SAP Graphical User Interface (SAP GUI). The files can either reside in the client PC's file system or on a remote server that is reachable via http(s). If the SAP Logon isn't installed on the client PC, the SAPLOGON_LSXML_FILE environment variable can be used to specify the (remote) location of the SAPUILandscape.xml file.

Analysis workbooks and presentations are stored in the BW system with object type AAOE (for workbooks) and AAOP (for presentations). With SAP BW, you can store the file formats for Excel (.xls, .xlsx, .xlsm, .xlsb) and PowerPoint (.ppt, .pptx, .pptm).

Local Usage

You can also use SAP Analysis locally, without a platform.

In this case, you can reuse the BW systems defined in the `SAPUILandscape.xml` file in the Windows directory on your local machine.

Microsoft Excel workbooks and Microsoft PowerPoint presentations, created with Analysis, are stored locally on your client PC or on a fileshare. You can store the file formats for Excel (.xls, .xlsx, .xlsm, .xlsb) and PowerPoint (.ppt, .pptx, .pptm)

Related Information

To define system connections to SAP BW [page 129]

4.1.3 SAP BW/4HANA

SAP Analysis supports SAP BW/4HANA as its platform. Using SAP BW/4HANA as the platform, you can connect to SAP BW/4HANA systems and use the data sources for your analysis. The Analysis objects can then be stored in the BW/4HANA system.

SAP BW/4HANA systems have to be defined in the SAPUILandscape.xml file in the Windows directory on your local machine. SAP Analysis receives the list of available BW/4HANA systems in the SAPUILandscape.xml file and establishes direct access to the defined systems for data exchange.

You can also define systems in the `SAPUILandscapeGlobal.xml` file in the Windows directory on your local machine. Therefore, the `SAPUILandscapeGlobal.xml` file must be in the same folder as the `SAPUILandscape.xml` file.

The location of the SAPUILandscape.xml files is usually defined via the options dialog of the SAP Logon that is part of the SAP Graphical User Interface (SAP GUI). The files can either reside in the client PC's file system or on a remote server that is reachable via http(s). If the SAP Logon isn't installed on the client PC, the SAPLOGON_LSXML_FILE environment variable can be used to specify the (remote) location of the SAPUILandscape.xml file.

Analysis workbooks and presentations are stored in the BW/4HANA system with object type AAOE (for workbooks) and AAOP (for presentations). With SAP BW/4HANA, you can store the file formats for Excel (.xls, .xlsx, .xlsm, .xlsb) and PowerPoint (.ppt, .pptx, .pptm).

The functions available in SAP BW/4HANA differ from the functions in SAP BW. For more information, see the SAP BW/4HANA documentation on the SAP Help Portal at SAP BW/4HANA.

The following functions of Analysis are supported when using SAP BW/4HANA as platform. The functions are available as of the listed releases. However, you might be required to implement additional SAP Notes.

Function	SAP BW/4HANA 1.0	7.40	7.50
SAP BW/4HANA as platform	SP 08		
Launching BW Modeling Tools		SP 16	SP 05
Planning Data*: New Lines	SP 08		
Planning Data: Creating new master data	SP 08		
Planning Data: Upload Data from a file	SP 08		
Formula-Optimized Mode	SP 09		SP 13
Saving Comments	SP 08		

* To use the new planning functions, some parameters in transaction RSADMIN are required. For more information, see SAP Note 2508938.

4.2 Upgrade

4.2.1 Migrating to Analysis 2.8

Context

If you have an earlier version of Analysis installed on your PC and you want to migrate to Analysis 2.8, you can start the Analysis installation file without uninstalling Analysis before.

Procedure

1. Start *SapCofSetup.exe*.
   The SAPSetup installation wizard appears.
2. Select *Analysis for Microsoft Office* in the component list of the *SAP Front End Installer* dialog box.
3. Choose *Next*.
4. If necessary, change the target directory and choose *Next* to start the upgrade.
5. In the confirmation screen, choose *Done*.

Results

Analysis 2.8 for Microsoft Office has been installed and is ready to use.

> **i** Note
>
> The following configurations that you defined in 1.x releases, cannot be migrated automatically:
>
> - Settings are maintained in the file system and not in the registry. You have to specify the settings in the file system again.
> - SAP HANA platform connections are now implemented as an HTTP connection. The ODBC connections that were used in former releases (1.x), are no longer supported. After creating an HTTP connection, you can change the connection type in a workbook or presentation.
> - You can enhance the Analysis tab in the ribbon. The name space for the Analysis tab is now SapExcelAddIn. In 1.x releases the name space for the Analysis tab is SBOP.AdvancedAnalysis.Addin.1. You have to enhance the Analysis ribbon again.
>   You can find more information about enhancing the Analysis ribbon in the User Guide.

Related Information

Defining connections to SAP HANA [page 135]
Settings [page 16]
Customizing the User Interface [page 156]

4.2.2 Using existing Workbooks and Presentations in Analysis 2.8

The usage of existing Analysis workbooks and presentations in Analysis 2.8 depends on the platform you use to store the files.

BW Connections

- SAP NetWeaver server / Local storage
  You can open existing workbooks and presentations in Analysis 2.8 and continue analyzing the data of the workbook with Analysis 2.8.
- Storage in SAP BusinessObjects Business Intelligence
  You can open existing workbooks and presentations that are stored on the business intelligence platform in Analysis 2.8 and continue analyzing the data with Analysis 2.8. You can save the changed workbooks and presentations on the BI platform.
- BEx Analyzer workbooks
  You can convert BEx Analyzer workbooks to Analysis workbooks. After the conversion, you can open them in Analysis 2.8 and continue your analysis. You can also save them to a platform.

HANA Connections

As of Analysis 2.0, the connection to the SAP HANA platform is implemented as an HTTP connection. The ODBC connections that were used in former releases (1.x), are no longer supported.

You can migrate the connection type in a workbook or presentation. If you open an object containing ODBC connections in Analysis 2.8, the *SAP HANA Data Source Migration* dialog appears automatically. In the dialog, you can select an existing HTTP connection for each ODBC connection.

Note that the HTTP connection must be created before you can migrate a workbook or presentation.

After assigning the HTTP connection, the migration can be started and you can refresh the corresponding data sources and save the workbook or presentation as 2.x object.

Related Information

Defining connections to SAP HANA [page 135]

4.2.3 Saving a workbook with 1.x format

You can save workbooks with 1.x format in Analysis 2.8. Then you can open the workbook in a 1.x release. All changes made with functions that are only available as of Analysis 2.0 (for example, Table Design formatting), are deleted if you save workbook as 1.x format.

You can save workbooks with 1.x format on the Business Intelligence platform and on the NetWeaver server.

In order to enable this function in Analysis, the setting `SupportsSaveAs1x` must be set to true. With the setting `SaveAs1xByDefault`, you can define whether a workbook should be saved by default with 1.x format in Analysis 2.8.

Note that after saving a workbook in 2.x format, it is no longer possible to save the same workbook to 1.x format. If you want to save a 2.x workbook as 1.x again, you can delete the 2.x version using the context menu in the *Save Workbook* dialog and then save the workbook in 1.x format.

Related Information

Settings for the Analysis Plug-in [page 28]

4.3 To configure the load behavior of the Analysis Add-In

Context

To enable users to access Analysis in any Microsoft Excel and Microsoft PowerPoint file, you have to set the `LoadBehavior` parameter to the required value in the registry of the client PCs.

If the Add-In is enabled, it is always active when you start Microsoft Excel or PowerPoint. If it is disabled, it is active only after starting it with the Add-In Launcher in the *Start* menu, with he desktop shortcut, or following manual activation in the *COM Add-In* dialog.

> **i** Note
>
> Before users can access Analysis in any Microsoft Excel or Microsoft PowerPoint file, ensure that Analysis has been started once directly in the Windows directory or by choosing the desktop icons.

Procedure

1. To open the registry editor, select *Start* > *Run* and enter *regedit*.
2. Navigate to the folder: `HKEY_CURRENT_USER\Software\Microsoft\Office\Excel\Addins\SapExcelAddIn` and select the `LoadBehavior` parameter.

   > **i** Note
   >
   > After installation, the default value is `0`. This means that the Analysis Add-In is disabled and is not activated automatically when Microsoft Excel or PowerPoint is started.

3. To enable the Analysis Add-In, set the parameter accordingly:

Option	Description
`0`	The Add-In is disabled. Users can enable the Add-In temporarily by activating the Add-In in the *COM Add-In* dialog box.
`1`	The Add-In is enabled. This temporary activation means that the Add-In is disabled again when Microsoft Excel is closed.
2	The Add-In is disabled. Users can enable it in the *COM Add-In* dialog box. This sets the value to 3.
3	The Add-In is enabled. If required, users can disable it in the *COM Add-In* dialog box. This sets the value to 2.

For more information on enabling and disabling the Add-In in Microsoft Excel and Microsoft PowerPoint, see the *Analysis Plug-in User Guide* at SAP Analysis for Microsoft Office.

Results

Analysis is now ready for use in any Microsoft Excel file and in any Microsoft PowerPoint file.

4.3.1 Configuring the Analysis Add-In Launcher

You can configure the Analysis Add-In Launcher in the shortcut and in the registry.

The configuration in the shortcut is used if you start Analysis with the *Start* menu or the desktop shortcut. If you launch Analysis from SAP GUI or a browser, the configuration in the registry is used.

You can use the following parameters for the launcher configuration:

- `/app XLS` starts the Analysis Add-In in Microsoft Excel. This is the default setting.
- `/app PPT` starts the Analysis Add-In in Microsoft PowerPoint.
- `/lb 0` starts the Analysis Add-In with load behavior set to 0.
- `/lb 3` starts the Analysis Add-In with load behavior set to 3.
- `/app XLS /AOonly` starts only the Analysis Add-In in Microsoft Excel and no other Add-Ins.
- `/app XLS /NoLO` starts the Analysis Add-In in Microsoft Excel without starting SAP BusinessObjects Live Office.

- `/app XLS /UseRunningProcess` starts the Analysis Add-In using a Microsoft Excel process that is already running. If no Excel process is running, the Add-In is launched with the default setting.
- `/app XLS /CreateProcess` starts the Analysis Add-In using a new process if Microsoft Excel 2013 is already running. The default behavior in Microsoft Excel 2013 is to reuse a running process.
- `/empty/app XLS` starts the Analysis Add-In in Microsoft Excel when an Analysis workbook is launched without opening an additional template workbook.
  A template workbook is opened in Analysis if a workbook template (*.xltx) is available in the XLSTART folder of Microsoft Excel. Using this parameter, you can avoid that an additional template workbook is opened.
  Note that the parameter /empty will be ignored if you use the parameter /CreateProcess in the launcher configuration. If you use the parameter /CreateProcess it is not possible to avoid that an additional template workbook is opened.

Shortcut configuration

1. Right-click the Analysis Add-In in the *Start* menu or in the desktop shortcut and select *Properties*.
2. Add the desired parameters to the path in the *Target* field on the *Shortcut* tab.
   The path in the target field contains the launcher executable and the optional parameters, for example `"C:\Program Files (x86)\SAP BusinessObjects\Office AddIn\BiOfficeLauncher.exe" /app XLS`.

Registry configuration

1. To open the registry editor, select *Start* > *Run* and enter *regedit*.
2. Navigate to the appropriate folder.
   For Analysis for Microsoft Excel: HKEY_CLASSES_ROOT\SAP.AO.XI.Launch\shell\Open\command.
   For Analysis for Microsoft PowerPoint: HKEY_CLASSES_ROOT\SAP.AO.Ppt.Launch\shell\Open\command.
3. Double-click the *Default* value and add the desired parameters to the path in the *Value Data* field..
   The path in the value data field contains the launcher executable and the optional parameters, for example `"C:\Program Files (x86)\SAP BusinessObjects\Office AddIn\BiOfficeLauncher.exe" /app XLS /launchfile "%1"`.

4.4 Defining connections to SAP BusinessObjects Business Intelligence

4.4.1 To define a system connection to SAP BusinessObjects Business Intelligence

Context

The `BOESystems` setting allows you to define system connections to the business intelligence platform. It is maintained in the file Ao_app.config that is stored in the file system under `C:\ProgramData\SAP\Cof`.

As administrator, you can define the setting and you can also define if a user should be able to change a setting locally.

As a user, you can change the setting in the file system under `Users\<UserID>\AppData\Roaming\SAP\Cof`. The file name for changing the settings locally is ao_user_roaming.config.

Users can select the defined system connections from the *Web Service URLs* list in the *Logon to SAP BusinessObjects Enterprise* dialog box when opening or saving workbooks.

Procedure

1. Navigate to the folder `C:\ProgramData\SAP\Cof` and open the file to change the setting.
2. Define the system connections in setting `BOESystems`.

   Example with defined connections to two platform servers:

```
<BOESystems>
<![CDATA[<?xml version="1.0" encoding="utf-16"?>
<ArrayOfCoBoeSystemInfo xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
<CoBoeSystemInfo>
<SystemId>vm2468</SystemId>
<Hostname>vm2468</Hostname>
<Scheme>http</Scheme>
<Port>8080</Port>
<SessionServiceUrl>/dswsbobje/services/Session</SessionServiceUrl>
<Active>true</Active>
<UseSso>false</UseSso>
<LastUsedAuthentication>secEnterprise</LastUsedAuthentication>
<CMSNames><string/></CMSNames>
</CoBoeSystemInfo>
<CoBoeSystemInfo>
<SystemId>vm1357</SystemId>
<Hostname>vm1357</Hostname>
<Scheme>http</Scheme>
<Port>8080</Port>
<SessionServiceUrl>/dswsbobje/services/Session</SessionServiceUrl>
<Active>false</Active>
<UseSso>false</UseSso>
<LastUsedAuthentication>secEnterprise</LastUsedAuthentication>
```

```
<CMSNames><string/></CMSNames></CoBoeSystemInfo>
</ArrayOfCoBoeSystemInfo>
]]>
</BOESystems>
```

a. Enter the required value for the parameter `SystemId`.
b. As `Hostname`, enter the name of the machine that the business intelligence platform is installed on.
c. For the parameters `Scheme`, `Port` and `SessionServiceUrl`, enter the URL values that were defined during the installation of the business intelligence platform.
d. To set this connection to the business intelligence platform as the default connection, enter **`True`** for the `Active` parameter.

   If you enter `False` for the `Active` parameter the connection appears as an entry that can be selected by the users in the list of connections in the logon dialog box.
e. For the parameter `UseSso`, you can specify if the SSO check box in the log-on dialog is checked or not. The value changes if the user selects or deselects the check box.
f. For the parameter `LastUsedAuthentication`, you can enter an authentication type that is used in the log-on dialog.
g. For the parameter `CMSNames`, you can enter a system to specify the central management system for the log-on dialog.

3. Save the file with the defined setting.

Results

The *Logon to SAP BusinessObjects Enterprise* dialog box contains the list with the three configured *Web Service URLs* that describe the connections to the business intelligence platform servers. The first entry in the settings file is the default connection.

> **i** Note
>
> After creating a new connection in the *Logon to SAP BusinessObjects Enterprise* dialog box and logging on to this business intelligence platform server, Analysis adds this connection to the BOESystems setting and sets it as the default connection. If there is already data from this business intelligence platform server in the BOESystems setting, Analysis changes the diverging parameter values in the BOESystems setting and sets this connection as the default.

For getting an overview of making secure connections between Analysis and its targets, please see the SAP Knowledge Base Article Analysis for Office Secure Connections.

4.4.2 Creating and managing BW system connections in the BI platform

Prerequisites

You can use Analysis with SAP BusinessObjects Business Intelligence XI as the central content management system for Analysis objects, and as platform for managing data source connections.

Context

Before users can begin working with business data in Analysis, you have to create connections to BW systems so they can add data sources to their Analysis workbooks.

You create new connection objects and manage existing connection objects in the module *OLAP Connections* in the Central Management Console (CMC) of the business intelligence platform. To create a connection to a BW system, you define a connection to any object of the BW system.

> **i** Note
>
> When you create a new connection with the module *OLAP Connections*, you should not use authentication type *Pre-defined* because the pre-defined user (and password) is not exposed to local clients such as Analysis.

You can also create an OLAP connection with SAP HANA as provider. With this HANA OLAP connection, you can use Analysis directly on top of a SAP HANA database.

For more information about creating and managing connections in SAP BusinessObjects Business Intelligence Platform , see "Connection settings for SAP BW data sources" in the *SAP BusinessObjects Analysis, edition for OLAP Administrator Guide* at SAP BusinessObjects Business Intelligence Platform.

You also have to make sure that the client PCs can communicate with the connected BW systems. If the BW system uses a message server the client PCs must specify the service name of the message server in the system services file at `<systemdrive>:\WINDOWS\system32\drivers\etc\services`. Configure the system services file of each client PC accordingly.

Once you have created BW system connections, these connections appear in the list of connections in the *Insert Data Source* dialog box in Analysis. Your users can add them to their Analysis workbooks. Users can access all BW objects (InfoProviders, queries and query views) of the connected BW system that they are authorized for by the BW authorization concept.

Defining SNC connections

You can't maintain any Secure Network Communication (SNC) information in the OLAP connection on the BI platform.

But Analysis can read the SNC information from the SAPUILandscape. You can reuse the SNC information for your connection on the BI platform if the same system is maintained in the OLAP connection on the BI platform and in the SAPUILandscape.

To enable the reuse of the SNC information, the following properties must coincide on the BI platform and in the SAPUILandscape:

- System ID (SID)
- Group/Server
- Message Server

Additionally, the Analysis setting `UseLocalSncInfoForRemoteConnections` must be set to true. This is the default value for this setting.

For more information about configuring a secure connection in the SAPUILanadscape, please see the related links for defining system connections to SAP BW and SAP BW/4HANA.

When a connection based on an OLAP connection is established, Analysis reads the information from the OLAP connection on the BI platform and tries to find a matching system in the SAPUILandscape. If there is a

matching system, Analysis uses the SNC information from the SAPUILandscape connection to establish the OLAP connection securely.

Related Information

To define system connections to SAP BW [page 129]
To define system connections to SAP BW/4HANA [page 130]

4.5 Defining connections to SAP BW

4.5.1 To define system connections to SAP BW

Prerequisites

SAP BW systems have to be defined in the `SAPUILandscape.xml` file. SAP Analysis receives the list of available BW systems in the `SAPUILandscape.xml` file and establishes direct access to the defined systems for data exchange. You can also define systems in the `SAPUILandscapeGlobal.xml`.

The location of the `SAPUILandscape.xml` files is usually defined via the options dialog of the SAP Logon that is part of the SAP Graphical User Interface (SAP GUI). The files can either reside in the client PC's file system or on a remote server that is reachable via http(s). If the SAP Logon isn't installed on the client PC, the SAPLOGON_LSXML_FILE environment variable can be used to specify the (remote) location of the `SAPUILandscape.xml` file.

Analysis also supports `<include>` elements in the `SAPUILandscape.xml`. Note that nested includes where an included file references another file via `<include>` are currently not supported.

You can use the Secure Network Communication (SNC) to secure the RFC communication to the BW backend system. The respective SNC client libraries have to be present and properly configured on the client PC. Note that these libraries are not part of the Analysis installation.

Analysis also still provides support for the retired saplogon.ini files.

Context

You can reuse the BW systems defined in SAP Logon on the client PCs. SAP Analysis receives the list of available BW systems in the SAP Logon and establishes direct access to the defined systems for data exchange.

For more information about BW system connections in the SAP Logon file, see SAP Help Portal at SAP GUI.

You also have to make sure that the client PCs can communicate with the connected BW systems. If the BW system uses a message server, the client PCs must specify the service name of the message server in the system services file. Configure the system services file of each client PC accordingly.

Results

Once you have defined the BW system connections, they appear in the list of connections in the *Insert Data Source* dialog box in Analysis. Your users can add them to their Analysis workbooks. Users can access all BW objects (InfoProviders, queries and query views) of the connected BW system that they are authorized for by the BW authorization concept. Users can also save documents in the BW system if SAP BW is used as platform.

For getting an overview of making secure connections between Analysis and its targets, please see the SAP Knowledge Base Article Analysis for Office Secure Connections.

4.5.2 To define system connections to SAP BW/4HANA

Prerequisites

SAP BW/4HANA systems have to be defined in the `SAPUILandscape.xml` file. SAP Analysis receives the list of available BW/4HANA systems in the `SAPUILandscape.xml` file and establishes direct access to the defined systems for data exchange. You can also define systems in the `SAPUILandscapeGlobal.xml`.

The location of the `SAPUILandscape.xml` files is usually defined via the options dialog of the SAP Logon that is part of the SAP Graphical User Interface (SAP GUI). The files can either reside in the client PC's file system or on a remote server that is reachable via http(s). If the SAP Logon isn't installed on the client PC, the SAPLOGON_LSXML_FILE environment variable can be used to specify the (remote) location of the `SAPUILandscape.xml` file.

Analysis also supports `<include>` elements in the `SAPUILandscape.xml`. Note that nested includes where an included file references another file via `<include>` are currently not supported.

You can use the Secure Network Communication (SNC) to secure the RFC communication to the BW/4HANA backend system. The respective SNC client libraries have to be present and properly configured on the client PC. Note that these libraries are not part of the Analysis installation.

Analysis also still provides support for the retired saplogon.ini files.

Context

You can reuse the BW/4HANA systems defined in SAP Logon on the client PCs. SAP Analysis receives the list of available BW/4HANA systems in the SAP Logon and establishes direct access to the defined systems for data exchange.

For more information about BW/4HANA system connections in the SAP Logon file, see SAP Help Portal at SAP GUI.

You also have to make sure that the client PCs can communicate with the connected BW/4HANA systems. If the BW/4HANA system uses a message server, the client PCs must specify the service name of the message server in the system services file. Configure the system services file of each client PC accordingly.

Results

Once you have defined the BW/4HANA system connections, these connections appear in the list of connections in the *Insert Data Source* dialog box in Analysis. Your users can add them to their Analysis workbooks. Users can access all BW/4HANA objects of the connected system that they are authorized for by the BW authorization concept. Users can also save documents in the BW/4HANA system used as a platform.

4.5.3 Management of Analysis connections in BW systems (SM04)

You can use transaction SM04 in SAP BW and SAP BW/4HANA systems to check the connections for Analysis. The connections are displayed by users. In general, there will be one connection in SM04 for each workbook with a running data source.

If a workbook is closed, the corresponding connection in SM04 remains open for 60 seconds to be used for a new workbook that might be opened in this period. Reusing connections could save some overhead for connection initialization. Analysis keeps up to two of these idle connections that may be reused. All other idle connections are deleted after a few seconds in SM04.

Additionally, there will be one connection in SM04 fetching the meta data of the RFCs. The connection is started with the first workbook that is opened. It will be kept open for 24 hours after the last workbook was closed.

If you close Microsoft Excel, all connections are deleted immediately in SM04.

Example

The following example shows how actions in Analysis with several workbooks are displayed as connections in transaction SM04.

Actions in Analysis	Connections in SM04
1. In workbook A, insert a data source from a BW system.	Two new connections are visible in SM04:. Connection A1 is used to retrieve RFC meta data. Connection A2 is used for real RFC calls.
2. In workbook B, insert a data source from a BW system.	One new connection is visible in SM04:. Connection B1 is used for real RFC calls.

Actions in Analysis	Connections in SM04
3. In workbook C, insert a data source from a BW system.	One new connection is visible in SM04:. Connection C1 is used for real RFC calls.
4. In workbook D, insert a data source from a BW system.	One new connection is visible in SM04:. Connection D1 is used for real RFC calls.
5. Close workbook D.	The idle connection D1 will be visible for 60 seconds.
6. Close workbook C.	The idle connection C1 will be visible for 60 seconds.
7. Close workbook B.	The idle connection B1 is deleted after a few seconds as it would be the third idle connection and only two idle connections are kept for reuse.
8. In workbook E, insert a data source from a BW system.	No new connection is visible in SM04 as connection D1 is still available and reused for real RFC calls.
9. Close workbook A.	Note that closing workbook A shows a different behavior. As it was the first workbook with an active Analysis connection, connection A2 will be kept to share its connection context with open and save services for future connections. Connection A1 will be kept open for 24 hours after the last workbook was closed.

For more information, see SAP Note 1794017

4.6 Defining connections to SAP Analytics Cloud

In Analysis, you can create local connections to SAP Analytics Cloud. You can use import data connections and live data connections.

Import data connection means that you can import (copy) data and save it in SAP Analytics Cloud. Changes made to the data in the source system don't affect the imported data until and unless the data is imported again, either manually or as a scheduled job.

Live Data connection means that you're directly connected to a system via your SAP Analytics Cloud. The following live data connections, objects and connection types are supported in Analysis:

- SAP HANA to access SAP HANA views (Type: Direct Connection)
- SAP BW to access SAP BW objects (Type: Direct Connection)
- SAP BW/4HANA to access SAP BW/4HANA objects (Type: Direct Connection)
- SAP BPC to access SAP BPC objects (Type: Direct Connection)
- SAP S/4HANA to access SAP S/4HANA ABAP CDS views (Type: Direct Connection)

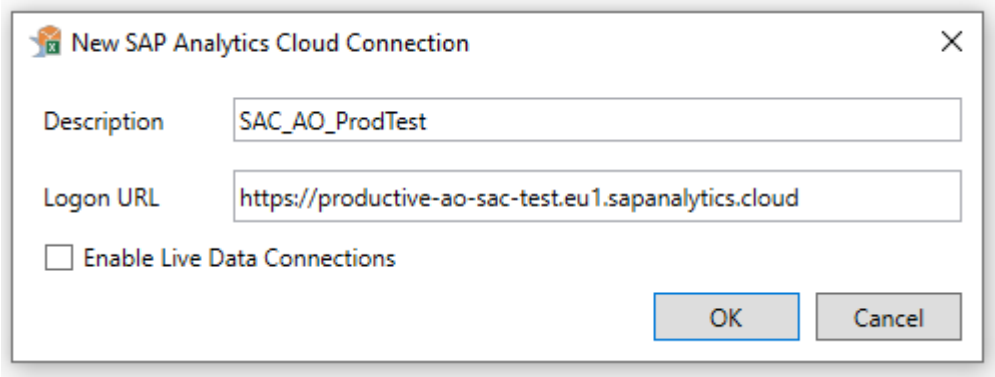
Please note that the Tunnel connection type is currently not supported.

For all live data connections, besides SAP HANA, you need to activate https://<bw_host_url>:<port>/sap/bw/analysis/ on the connected BW system. You can do this in transaction SICF.

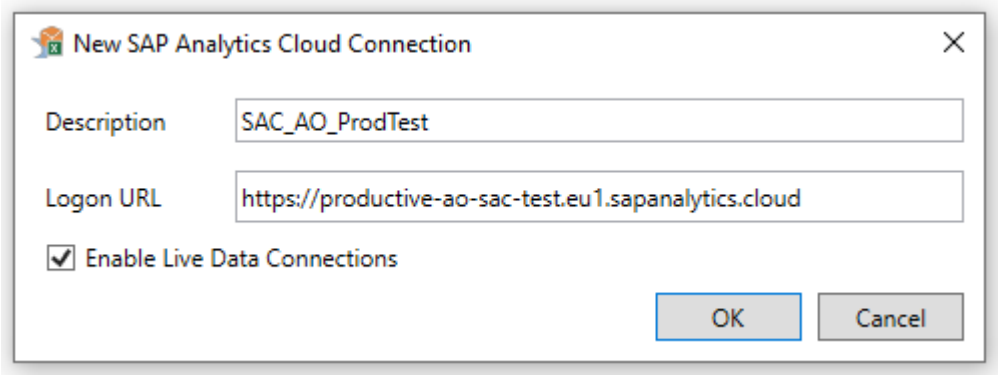
For more information on the required system versions, please see the SAP Analytics Cloud help for System Requirements and Prerequisites at Data Connectivity - Live.

You define the system connections to SAP Analytics Cloud in the *Select Data Source* dialog:

1. Select a cell in the Analysis worksheet.
2. Select *Insert Data Source* > *Select Data Source...* in the Analysis ribbon.
3. Select *Skip* to go to the local system connections.
4. Select *Create New SAP Analytics Cloud Connection...* in the context menu in the Description area.
   The *New SAP Analytics Cloud Connection* dialog box appears.



5. Enter a description for the new local SAP Analytics Cloud connection.
6. Enter the logon URL for the new local SAP Analytics Cloud connection.
   This is the URL of your SAP Analytics Cloud tenant. Note that the URL has to start with `https://`.
7. Click the option *Enable Live Data Connections* if you want to use live data connections to SAP BW and SAP HANA systems.

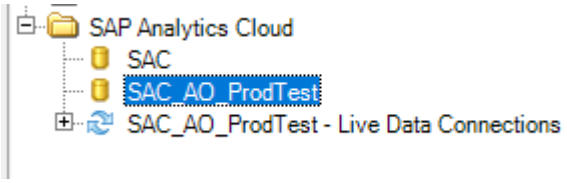


   For live data connections, Analysis will use:
   1. The default language specified in the connection settings of the live data connection in SAP Analytics Cloud.The new connection is available in the
   2. The user's preferred language in case that no specific language was configured in the Live Data connection settings.
      If set, the data access language from the user's profile will be used.
      If the data access language is set to Default, the language of the user's profile will be used.
   3. If the Analysis advanced option *Allow Client and Language Selection for SSO Logon* is enabled, you get a dialog to select the desired logon language when logging on to an SAP Analytics Cloud Live Data

connection. This selection overwrites the language configurations specified in SAP Analytics Cloud (step a and b).

For more information, please see the SAP Analytics Cloud help at Editing Your Profile and Setting the Default Language for Live Data Connections.

8. Select *OK* to create the connection.
   Select Data Source dialog.
   For live data connections, you see a second entry:



9. The new connection is availableSelect the live data connection entry to connect to your SAP Analytics Cloud.
   After entering your credentials for the SAP Analytics Cloud, the available systems for the live data connection are added to the connection.

The new connection and its systems are now available in the *Select Data Source* dialog. Choose Next to logon and start your analysis.

You can also edit and delete existing local SAP Analytics Cloud connections in this dialog.

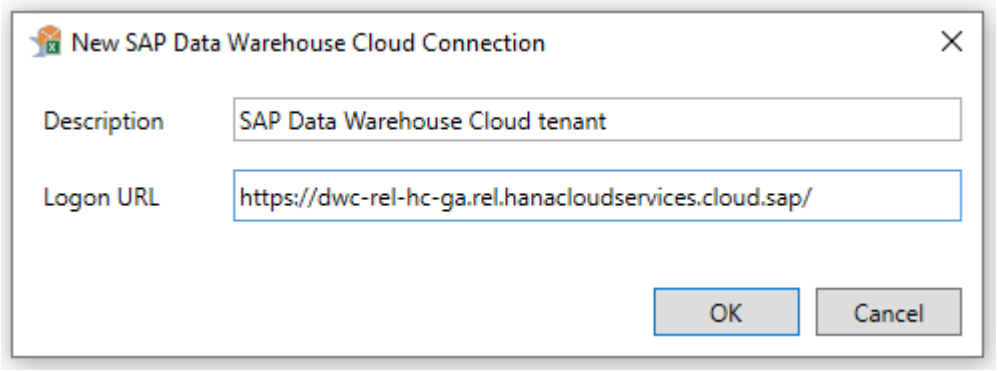
For getting an overview of making secure connections between Analysis and its targets, please see the SAP Knowledge Base Article Analysis for Office Secure Connections.

4.7 Defining connections to SAP Data Warehouse Cloud

In Analysis, you can create direct connections to SAP Data Warehouse Cloud.

You define the system connections to SAP Data Warehouse Cloud in the *Select Data Source* dialog:

1. Select a cell in the Analysis worksheet.
2. Select *Insert Data Source* > *Select Data Source...* in the Analysis ribbon.
3. Select *Skip* to go to the local system connections.
4. Select *Create New SAP Data Warehouse Cloud Connection...* in the context menu in the Description area.
   The *New SAP Data Warehouse Cloud Connection* dialog box appears.



5. Enter a description for the new SAP Data Warehouse Cloud connection.
6. Enter the logon URL for the new SAP Data Warehouse Cloud connection.
   This is the URL of your SAP Data Warehouse Cloud tenant. Note that the URL has to start with `https://`.
7. Select *OK* to create the connection.

The new connection is now available in the *Select Data Source* dialog. Choose Next to logon and start your analysis. To be able to insert datasets, make sure that your user is a member of the space where the datasets are located.

You can also edit and delete existing local SAP Data Warehouse Cloud connections in this dialog.

For getting an overview of making secure connections between Analysis and its targets, please see the SAP Knowledge Base Article Analysis for Office Secure Connections.

4.8 Defining connections to SAP HANA

If you use SAP Business Warehouse, powered by SAP HANA, you can analyze BW queries, query views and InfoProvider with Analysis. You can connect and use a BW system, powered by SAP HANA, like other BW systems with Analysis.

If you use the SAP HANA appliance software, you can analyze SAP HANA data sources with Analysis. You can use SAP HANA 1.0 as of SP09 or SAP HANA 2.0 as of SP01.

The connection to the SAP HANA platform relies on the http(s) protocol for the communication with the SAP HANA server. You have the following options to connect to SAP HANA platform with an HTTP connection:

- You can connect to the SAP HANA platform via SAP BusinessObjects Business Intelligence platform. This connection can be created directly in the CMC of the SAP BusinessObjects BI platform.
- You can create local SAP HANA connections in Analysis. Note that ODBC connections that were used in former releases (1.x), are no longer supported. You can migrate the connection type in a workbook or presentation.

To create an SAP HANA HTTP connection, either on the BI platform or as local connection, the following prerequisites must be met:

- You use one of the following SAP HANA versions:
  - SAP HANA Platform 1.0 SP09 or higher
    With SAP HANA Platform 1.0 SP09, we recommend that you use Revision 96 or higher.
  - SAP HANA Platform 2.0 SP01 or higher
    For SAP HANA 2.0, you need to install a seperate SAP HANA plug-in. The plug-in is called SAP HANA EPMMDS.
    For more information, see SAP Note 2456225.
- The SAP HANA Info Access Service (InA) with delivery unit HCO_INA_SERVICE is deployed on the SAP HANA platform.
  You can find more information in chapter Importing the Info Access Service in the SAP HANA Search Developer Guide.
- In the XS Admin Tool, you configured that the SAP HANA InA Service can be accessed with authentication method Basic (in addition to other authentication methods). For more information see SAP Note 2193057.

- The role **`sap.bc.ina.service.v2.userRole::INA_USER`** is assigned.
  The role is contained in delivery unit HCO_INA_SERVICE. Verify that the following authorizations are selected: Schema _SYS_BIC, Schema _SYS_BI and Schema _SYS_RT. For more information, see SAP Note 2097965 .
- To make sure that your users can only view data in SAP HANA data sources (analytic views and calculation views) that they have authorization for, you have to perform the following activities:
  1. Copy the role **`sap.bc.ina.service.v2.userRole::INA_USER`**.
  2. In the copied role, remove the *Select* privilege on schema _SYS_BIC.
  3. Replace the original role **`sap.bc.ina.service.v2.userRole::INA_USER`** by assigning the copied role to your users.
  4. Define the detailed privileges for the new copied role as described in SAP Note 1907697

You can use the setting `MaxNumberOfParallelThreads` to define the maximum number of parallel threads that Analysis can use to open the SAP HANA data sources of a workbook. The default value is `10`. This means that up to 10 data sourcers can be opened with parallel threads.

Related Information

Creating and managing BW system connections in the BI platform [page 127]
To create an SAP HANA connection on the BI platform [page 136]
To create a local SAP HANA connection [page 138]
Troubleshooting for SAP HANA HTTP connections [page 139]
Using existing Workbooks and Presentations in Analysis 2.8 [page 122]
Settings for the Analysis Plug-in [page 28]

4.8.1 To create an SAP HANA connection on the BI platform

Prerequisites

The MDAS property **`multidimensional.services.enable.hana.http.connections`** is set to true on each machine where an MDAS service is running.

The configuration file can be found on Windows under `<BI platform install directory>\SAP BusinessObjects Enterprise XI 4.0\java\pjs\services\MDAS\resources\com\businessobjects\multidimensional\services` and on Unix under `<BI platform install directory>/sap_bobj/enterprise_xi40/java/pjs/services/MDAS/resources/com/businessobjects/multidimensional/services/`.

> **Note**
>
> In order for this change to be effective, it is necessary to restart each instance of the Adaptive Processing Server which contains an MDAS service.

Context

On the BI platform, you can create an HTTP connection to an SAP HANA Server in the central management console.

To create an SAP HANA HTTP connection on the BI platform, you have to use a BI platform 4.2 SP0 or a higher version.

Procedure

1. Log on to the Central Management Console (CMC).
2. Select *OLAP Connections*.
3. Select the icon *New Connection*.
4. Enter a name and a description.

   The description is optional.
5. Select *SAP HANA http* as provider.
6. As *Server Information*, enter a URL with the following structure: `http(s)://<server>:<port>`

   We recommend to use HTTPS as scheme.

   The default HTTP port settings for SAP HANA XS include an SAP HANA instance number: 80<SAP HANA instance>, for example 8001. You can change the default settings, for example, to ensure that standard ports 80 and 443 are used for client access to the SAP HANA XS Web server HTTP (80) or HTTPS (443).

   For more information, see chapter Maintain Standard HTTP Port Numbers with SAP HANA XS in the SAP HANA Administration Guide.
7. Select the *Authentication* type:

   - *Prompt*
     When this type is selected for the connection, the end user will be prompted with a dialog box to enter a user ID and password.
   - *SSO* (single sign-on)
     With the single sign-on option selected, the user has to sign on once. The authentication method for this connection is SAML 2.0.
     For more information, see chapters User Authentication and Single-Sign On and Maintaining Single Sign-On for SAP HANA XS Applications in the SAP HANA Administration Guide.

   Note that you should not use authentication type *Pre-Defined* because the pre-defined user (and password) is not exposed to local clients such as Analysis.
8. Select *Save* to create the connection.

   Associated Universes are ignored for SAP HANA HTTP connections.

Results

The new connection is available in the *OLAP Connection* list.

You can also edit and delete existing SAP HANA connections in this dialog.

For getting an overview of making secure connections between Analysis and its targets, please see the SAP Knowledge Base Article Analysis for Office Secure Connections.

4.8.2 To create a local SAP HANA connection

Context

In Analysis, you can create a local connection to an SAP HANA server. A local SAP HANA connection is created in the *Select Data Source* dialog.

Procedure

1. Select the cell in the Analysis worksheet.
2. Select *Insert Data Source* > *Select Data Source...* in the Analysis ribbon.
3. Select *Skip* to go to the local system connections.
4. Select *Create New SAP HANA Connection...* in the context menu in the Description area.

   The *New SAP HANA Connection* dialog box appears.
5. Enter a description for the new local HANA connection.
6. Select a scheme: HTTP or HTTPS

   We recommend to use HTTPS.
7. Enter a *Host Name*.
8. Enter a *Port*.

   The default HTTP port settings for SAP HANA XS include an SAP HANA instance number: 80<SAP HANA instance>, for example 8001. You can change the default settings, for example, to ensure that standard ports 80 and 443 are used for client access to the SAP HANA XS Web server by HTTP (80) or HTTPS (443).

   For more information, see chapter Maintain Standard HTTP Port Numbers with SAP HANA XS in the SAP HANA Administration Guide.
9. Select an *Authentication Type*:

   - *Automatic*
     This connection type delegates the authentication process to a browser control. Depending on the server configuration, the browser will use one of the supported authentication methods. In addition to the methods you can select explicitly in Analysis, this connection type supports e.g. identity providers based on SAML standard.
   - *Basic*

When this type is selected for the connection, the end user will be prompted with a dialog box to enter a user ID and password.

- *X.509 Client Certificate*
  Authentication with X.509 Certificates makes use of a Public Key Infrastructure (PKI) to securely authenticate users. In this case, user authentication takes place using the underlying Secure Sockets Layer (SSL) protocol and users do not need to interactively enter a password for logon.
- *Kerberos*
  The Kerberos authentication process involves several systems connected in a network, or a Kerberos realm. Kerberos authentication within a realm works on the basis of "tickets", which serve to prove the authenticity of client requests. Kerberos authentication makes use of a trusted third party system called Key Distribution Center (KDC).

For more information, see chapters User Authentication and Single-Sign On and Maintaining Single Sign-On for SAP HANA XS Applications in the SAP HANA Administration Guide.

10. Select *Create* or *Create and Logon...* to create the connection.

Results

The new connection is available in the *Select Data Source* dialog.

You can also edit and delete existing local SAP HANA connections in this dialog.

The local connections to SAP HANA are stored in the file InaSystems.xml in the folder %APPDATA%\SAP AG\SAP BusinessObjects Advanced Analysis.

4.8.3 Troubleshooting for SAP HANA HTTP connections

Verifying the URL for the SAP HANA HTTP connection

1. Add the server name and port of your connection to test the URL: `http(s)://<server>:<port>/sap/bc/ina/service/v2/GetServerInfo`
2. Open a browser and paste the URL.
3. You will receive one of the following responses:
   - HTTP 404 - not found
     This indicates that the server is not reachable (e.g. down or behind a firewall) or that the SAP HANA Info Access Service (InA) is not deployed.
   - The dialog box to enter user and password is displayed.
     If you have configured an SSO access, this indicates that the log-on was not successful.
   - A response is returned with a JSON format containing information about the server capabilities.
     This indicates that the log-on was successful.

Verifying Basic Data Base Access Rights (Index Server)

1. Complete the test URL with server name and port of your connection: `http(s)://<server>:<port>/sap/bc/ina/service/v2/GetResponse?Request={%22Metadata%22:{%22Expand%22:[%22Cubes%22]}}`
2. Open a browser and paste the URL.
3. Check that you receive a response without error.

4.9 Launching Analysis from the web

You can define launching files to start Analysis with an established connection or open a workbook saved on a platform, for example. To publish a launching file, you can directly share it with other users or make it public via a link on a web page.

Analysis offers the XML schema that helps you to create your own launching file. The XML schema is delivered as .xsd file (XSD = XML Schema Definition). The Analysis launching file that you create is an XML with extension .sapaox, which adheres to the format specified by the Analysis launcher XML schema.

The Analysis launcher XML schema specifies the supported elements and their combination that you can use in your XML launching document. The launching file that you create based on the schema needs to be saved as .sapaox file to launch Analysis. Only valid launching files will be processed by Analysis for Microsoft Office. Therefore, we recommend validating your file against the XML schema with a schema validation tool of your choice before you share your launching file with others.

The following scenarios are supported by the Analysis launcher XML schema:

Scenario	Platform/Backend
Start Analysis with an established connection	• SAP BI platform • SAP BW • SAP HANA • SAP Analytics Cloud
Start Analysis with an established connection and an open data source	• SAP BW • SAP HANA • SAP Analytics Cloud
Open a workboook saved on a platform	• SAP BI platform • SAP NetWeaver
Open a data source from a platform	• SAP BI platform
Get connection information from a platform	• SAP BI platform • SAP Analytics Cloud (live connections)

Scenario	Platform/Backend
Open a data source with the connection information (BIP) or Live Data Connection information (SAC) from a platform	• SAP BI platform • SAP Analytics Cloud (live connections)

Related Information

Getting the launcher XML schema [page 141]
Example: Open a BW connection with a data source [page 147]
Example: Open a HANA connection with a data source [page 148]
Example: Open a workbook saved on the BI platform [page 149]
Example: Open a workbook saved in SAP NetWeaver [page 150]

4.9.1 Getting the launcher XML schema

The launcher schema is a .xsd file that defines the syntax to be used in the Analysis launcher file. You can use it to create your own launching file according to your business need.

The launching file that you create based on the template needs to be saved as .sapaox file to launch Analysis.

You can download the schema: Analysis Launcher Schema

The schema is located here:

```
https://help.sap.com/doc/fc2ed58b24284dd2b585eee78fb878f5/2.8.3.0/en-US/
AoLauncher.zip
```

Every time you execute a .sapaox file to launch Analysis, it is validated against the schema.

Alternatively, you can  copy the schema code here and save it as a .xsd file on your machine. Please note that you then need also to adapt the schema location in the examples :

```
<?xml version="1.0" encoding="UTF-8"?>
<schema targetNamespace="AOLauncher"
        xmlns="http://www.w3.org/2001/XMLSchema"
        xmlns:aol="AOLauncher"
        elementFormDefault="qualified">
  <annotation>
    <documentation xml:lang="en">
      Schema for SAP Analysis for Microsoft Office
    </documentation>
  </annotation>
  <complexType name="AOLauncherType">
    <sequence>
      <choice>
        <element name="ConnectionItem" type="aol:ConnectionItemType"
minOccurs="1" maxOccurs="1"/>
        <element name="DataSourceItem" type="aol:DataSourceItemType"
minOccurs="1" maxOccurs="1"/>
```

```
        <element name="RepositoryItem" type="aol:RepositoryItemType"
minOccurs="1" maxOccurs="1"/>
      </choice>
    </sequence>
    <attribute name="debug" type="boolean" default="false"/>
    <attribute name ="version" type="aol:VersionType" use="required"/>
  </complexType>
  <simpleType name="VersionType" >
    <restriction base="decimal">
      <minInclusive value="2"/>
      <fractionDigits value="1" />
    </restriction>
  </simpleType>
  <complexType name ="ILauncherItem" />
  <complexType name="ConnectionItemType">
    <complexContent>
      <extension base="aol:ILauncherItem">
        <sequence>
          <choice>
            <element name="BWConnection" type="aol:BWConnectionType"
minOccurs="1" maxOccurs="1"/>
            <element name="HanaConnection" type="aol:HanaConnectionType"
minOccurs="1" maxOccurs="1"/>
            <element name="SACConnection" type="aol:SACConnectionType"
minOccurs="1" maxOccurs="1"/>
            <element name="BIPConnection" type="aol:BIPConnectionType"
minOccurs="1" maxOccurs="1"/>
          </choice>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
  <complexType name="DataSourceItemType">
    <complexContent>
      <extension base="aol:ILauncherItem">
        <sequence>
          <element name="Name" type="string" minOccurs="1" maxOccurs="1"/>
          <element name="DataSourceType" type="aol:DataSourceType" minOccurs="1"
maxOccurs="1"/>
          <element name="Configuration" type="aol:ItemConfigurationType"
minOccurs="0" maxOccurs="1" />
          <choice>
            <element name="BWConnection" type="aol:BWConnectionType"
minOccurs="1" maxOccurs="1"/>
            <element name="HanaConnection" type="aol:HanaConnectionType"
minOccurs="1" maxOccurs="1"/>
            <element name="SACConnection" type="aol:SACConnectionType"
minOccurs="1" maxOccurs="1"/>
            <element name="BIPConnection" type="aol:BIPConnectionType"
minOccurs="1" maxOccurs="1"/>
          </choice>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
  <simpleType name="DataSourceType">
    <restriction base="string">
      <enumeration value ="INFO_PROVIDER"/>
      <enumeration value="QUERY" />
      <enumeration value="QUERY_VIEW" />
    </restriction>
  </simpleType>
  <complexType name="RepositoryItemType">
    <complexContent>
      <extension base="aol:ILauncherItem">
        <sequence>
          <element name="Name" type="string" minOccurs="1" maxOccurs="1"/>
```

```
          <element name="Configuration" type="aol:RepositoryItemConfiguration"
minOccurs="0" maxOccurs="1" />
          <choice>
            <element name="BWConnection" type="aol:BWConnectionType"
minOccurs="1" maxOccurs="1"/>
            <element name="BIPConnection" type="aol:BIPConnectionType"
minOccurs="1" maxOccurs="1"/>
          </choice>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
  <!-- Configuration -->
  <complexType name="ItemConfigurationType">
    <sequence>
      <element name="ForcePrompt" type="boolean" minOccurs="0" maxOccurs="1"
nillable="true"/>
      <element name="Variables" minOccurs="0" maxOccurs="1">
        <complexType>
          <sequence>
            <element name="Variable" type="aol:VariableType" minOccurs="0"
maxOccurs="unbounded"/>
          </sequence>
        </complexType>
      </element>
    </sequence>
  </complexType>
  <complexType name="VariableType">
    <simpleContent>
      <extension base="string">
        <attribute name="name" type="string" use="required"/>
        <attribute name="datasource" type="string" use="optional"/>
      </extension>
    </simpleContent>
  </complexType>
  <complexType name="RepositoryItemConfiguration">
    <complexContent>
      <extension base="aol:ItemConfigurationType">
        <sequence>
          <element name="ForceRefresh" type="boolean" default="false"
minOccurs="0" maxOccurs="1" />
          <element name ="LastChangedAt" type="dateTime" minOccurs="0"
maxOccurs="1" />
        </sequence>
      </extension>
    </complexContent>
  </complexType>
  <!-- Connection -->
  <complexType name ="IConnection">
    <sequence>
      <choice>
        <element name="BWDestination" type="aol:BWDestinationType" minOccurs="1"
maxOccurs="1"/>
        <element name="HanaDestination" type="aol:HanaDestinationType"
minOccurs="1" maxOccurs="1"/>
        <element name="SACDestination" type="aol:SACDestinationType"
minOccurs="1" maxOccurs="1"/>
        <element name="BIPDestination" type="aol:BIPDestinationType"
minOccurs="1" maxOccurs="1"/>
      </choice>
      <choice>
        <element name="AutomaticAuthentication"
type="aol:AutomaticAuthenticationType" minOccurs="1" maxOccurs="1"/>
        <element name="BasicAuthentication" type="aol:BasicAuthenticationType"
minOccurs="1" maxOccurs="1"/>
        <element name="ReentranceTicketAuthentication"
type="aol:ReentranceTicketAuthenticationType" minOccurs="1" maxOccurs="1"/>
```

```
        <element name="SAMLAuthentication" type="aol:SAMLAuthenticationType"
minOccurs="1" maxOccurs="1"/>
      </choice>
      <choice>
        <element name ="BIPRedefinedConnectionItem"
type="aol:BIPRedefinedConnectionItemType" minOccurs="0" maxOccurs="unbounded"/>
      </choice>
    </sequence>
  </complexType>
  <complexType name="BWConnectionType">
    <complexContent>
      <restriction base="aol:IConnection">
        <sequence>
          <element name="BWDestination" type="aol:BWDestinationType"
minOccurs="1" maxOccurs="1" />
          <choice>
            <element name="BasicAuthentication"
type="aol:BasicAuthenticationType" minOccurs="1" maxOccurs="1"/>
            <element name="ReentranceTicketAuthentication"
type="aol:ReentranceTicketAuthenticationType" minOccurs="1" maxOccurs="1"/>
          </choice>
        </sequence>
      </restriction>
    </complexContent>
  </complexType>
  <complexType name="HanaConnectionType">
    <complexContent>
      <restriction base="aol:IConnection">
        <sequence>
          <element name="HanaDestination" type="aol:HanaDestinationType"
minOccurs="1" maxOccurs="1" />
          <choice>
            <element name="BasicAuthentication"
type="aol:BasicAuthenticationType" minOccurs="1" maxOccurs="1"/>
            <element name="SAMLAuthentication" type="aol:SAMLAuthenticationType"
minOccurs="1" maxOccurs="1"/>
          </choice>
        </sequence>
      </restriction>
    </complexContent>
  </complexType>
  <complexType name="SACConnectionType">
    <complexContent>
      <restriction base="aol:IConnection">
        <sequence>
          <element name="SACDestination" type="aol:SACDestinationType"
minOccurs="1" maxOccurs="1" />
          <element name="AutomaticAuthentication"
type="aol:AutomaticAuthenticationType" minOccurs="1" maxOccurs="1"/>
        </sequence>
      </restriction>
    </complexContent>
  </complexType>
  <complexType name="BIPConnectionType">
    <complexContent>
      <restriction base="aol:IConnection">
        <sequence>
          <element name="BIPDestination" type="aol:BIPDestinationType"
minOccurs="1" maxOccurs="1" />
          <choice>
            <element name="BasicAuthentication"
type="aol:BasicAuthenticationType" minOccurs="1" maxOccurs="1"/>
            <element name="SAMLAuthentication" type="aol:SAMLAuthenticationType"
minOccurs="1" maxOccurs="1"/>
          </choice>
          <element name ="BIPRedefinedConnectionItem"
type="aol:BIPRedefinedConnectionItemType" minOccurs="0" maxOccurs="unbounded"/>
        </sequence>
```

```
      </restriction>
    </complexContent>
  </complexType>
  <complexType name="IConnectionItem"/>
  <complexType name="BIPRedefinedConnectionItemType">
    <complexContent>
      <extension base="aol:IConnectionItem">
        <sequence>
          <element name="CUID" type="string" minOccurs="0"/>
          <element name="BoeId" type="int" minOccurs="0"/>
          <choice>
            <element name="BWConnection" type="aol:BWConnectionType"
minOccurs="1" maxOccurs="1"/>
            <element name="HanaConnection" type="aol:HanaConnectionType"
minOccurs="1" maxOccurs="1"/>
          </choice>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
  <!--Destination-->
  <complexType name="IDestination"/>
  <complexType name="BWDestinationType">
    <complexContent>
      <extension base="aol:IDestination">
        <sequence>
          <element name="SystemId" type="string" minOccurs="1" maxOccurs="1"/>
          <choice>
            <group ref="aol:group1"/>
            <group ref="aol:group2"/>
          </choice>
          <element name="Client" type="string"  minOccurs="1" maxOccurs="1"/>
          <element name="ServerGroup" type="string" minOccurs="0"/>
          <element name="ServerType" type="string" minOccurs="0"/>
          <element name="Language" type="string" minOccurs="0"/>
          <element name="SNCInfo" type="aol:SNCInfoType" minOccurs="0" />
        </sequence>
      </extension>
    </complexContent>
  </complexType>
  <group name="group1">
    <sequence>
      <element name="MessageServer" type="string"  minOccurs="1" maxOccurs="1"/>
    </sequence>
  </group>
  <group name="group2">
    <sequence>
      <element name="ApplicationServer" type="string"  minOccurs="1"
maxOccurs="1"/>
      <element name="SystemNo" type="string"  minOccurs="1" maxOccurs="1"/>
    </sequence>
  </group>
  <complexType name="BWMessageServer">
    <sequence>
      <element name="MessageServer" type="string"  minOccurs="1" maxOccurs="1"/>
    </sequence>
  </complexType>
  <complexType name="BWApplicationServer">
    <sequence>
      <element name="ApplicationServer" type="string"  minOccurs="1"
maxOccurs="1"/>
      <element name="SystemNo" type="string"  minOccurs="1" maxOccurs="1"/>
    </sequence>
  </complexType>
  <complexType name="SNCInfoType">
    <sequence>
      <element name="SNCName" type="string" minOccurs="1" maxOccurs="1" />
```

```
      <element name="SNCQuality" type="aol:SNCQualityType" minOccurs="1"
maxOccurs="1" />
      <element name="SNCPartnerName" type="string" minOccurs="0" maxOccurs="1" />
    </sequence>
  </complexType>
  <simpleType name="SNCQualityType">
    <restriction base="int">
      <enumeration value="0">
        <annotation>
          <documentation>SNC disabled</documentation>
        </annotation>
      </enumeration>
      <enumeration value="1">
        <annotation>
          <documentation>Authentication only</documentation>
        </annotation>
      </enumeration>
      <enumeration value="2">
        <annotation>
          <documentation>Authentication and integrity protection</documentation>
        </annotation>
      </enumeration>
      <enumeration value="3">
        <annotation>
          <documentation>Authentication, integrity protection, and privacy
protection (encryption)</documentation>
        </annotation>
      </enumeration>
      <enumeration value="8">
        <annotation>
          <documentation>Default value defined by back-end system</documentation>
        </annotation>
      </enumeration>
      <enumeration value="9">
        <annotation>
          <documentation>Maximum value that the current security product
supports</documentation>
        </annotation>
      </enumeration>
    </restriction>
  </simpleType>
  <complexType name="HanaDestinationType">
    <complexContent>
      <extension base="aol:IDestination">
        <sequence>
          <element name="SystemId" type="string" minOccurs="1" maxOccurs="1"/>
          <element name="Url" type="string" minOccurs="1" maxOccurs="1"/>
          <element name="Language" type="string" minOccurs="1" maxOccurs="1"/>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
  <complexType name="SACDestinationType">
    <complexContent>
      <extension base="aol:IDestination">
        <sequence>
          <element name="SystemId" type="string" minOccurs="1" maxOccurs="1"/>
          <element name="Url" type="string" minOccurs="1" maxOccurs="1"/>
          <element name="LiveDataConnectionID" type="string" minOccurs="0"
maxOccurs="1"/>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
  <complexType name="BIPDestinationType">
    <complexContent>
      <extension base="aol:IDestination">
        <sequence>
```

```
          <element name="Url" type="string" minOccurs="1" maxOccurs="1"/>
          <element name="Language" type="string" minOccurs="1" maxOccurs="1"/>
          <element name="OlapConnection" type="aol:OlapConnection" minOccurs="0"
maxOccurs="1"/>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
  <complexType name="OlapConnection">
    <sequence>
      <element name="CUID" type="string" minOccurs="1" maxOccurs="1"/>
      <element name="BoeId" type="int" minOccurs="1" maxOccurs="1"/>
    </sequence>
  </complexType>
  <!-- Authorization-->
  <complexType name="IAuthenticationType"/>
  <complexType name="BasicAuthenticationType">
    <complexContent>
      <extension base="aol:IAuthenticationType">
        <sequence>
          <element name="User" type="string" minOccurs="1" maxOccurs="1"/>
          <element name="Password" type="string" minOccurs="1" maxOccurs="1"/>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
  <complexType name="AutomaticAuthenticationType">
    <complexContent>
      <extension base="aol:IAuthenticationType">
      </extension>
    </complexContent>
  </complexType>
  <complexType name="SAMLAuthenticationType">
    <complexContent>
      <extension base="aol:IAuthenticationType">
        <sequence>
          <element name="User" type="string" minOccurs="1" maxOccurs="1"/>
          <element name="Ticket" type="string" minOccurs="1" maxOccurs="1"/>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
  <complexType name="ReentranceTicketAuthenticationType">
    <complexContent>
      <extension base="aol:IAuthenticationType">
        <sequence>
          <element name="User" type="string" minOccurs="1" maxOccurs="1"/>
          <element name="Ticket" type="string" minOccurs="1" maxOccurs="1"/>
          <element name="Ticket2" type="string" minOccurs="0" maxOccurs="1"/>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
  <element name="AnalysisLauncher" type="aol:AOLauncherType"/>
</schema>
```

4.9.2 Example: Open a BW connection with a data source

The following example shows a launcher file that starts Analysis with a connection to the BW system RIW for the user TestUse. In Analysis, it opens the data source DS03 and forces the prompts dialog to be displayed. Three prompts and their values are predefined.

```
<?xml version="1.0" encoding="utf-8"?>
<AnalysisLauncher  xmlns="AOLauncher" xsi:schemaLocation="https://
help.sap.com/doc/fc2ed58b24284dd2b585eee78fb878f5/2.8.3.0/en-US/AoLauncher.zip"
debug="false" version="2.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance">
  <DataSourceItem>
    <Name>DS03</Name>
    <DataSourceType>QUERY</DataSourceType>
    <Configuration>
      <ForcePrompt>1</ForcePrompt>
      <Variables>
        <Variable name='0BC_HIER_MAND'>CUST_DEEP_2</Variable>
        <Variable name='0BC_TYPE_SE'>&lt;C</Variable>
        <Variable name='0VC_FV_01'>5,78</Variable>
      </Variables>
    </Configuration>
    <BWConnection>
      <BWDestination>
        <SystemId>RIW</SystemId>
        <MessageServer>ldcikiw.sap.corp</MessageServer>
        <Client>000</Client>
        <Language>EN</Language>
      </BWDestination>
      <BasicAuthentication>
         <User>TestUse</User>
         <Password>test4ever</Password>
      </BasicAuthentication>
    </BWConnection>
  </DataSourceItem>
</AnalysisLauncher>
```

4.9.3 Example: Open a HANA connection with a data source

The following example shows a launcher file that starts Analysis with a connection to the HANA system BO5 for the user HANAUse. In Analysis, it opens the data source DS14 and forces the prompts dialog to be displayed. Two prompts and their values are predefined.

```
<?xml version="1.0" encoding="utf-8"?>
<AnalysisLauncher  xmlns="AOLauncher" xsi:schemaLocation="https://
help.sap.com/doc/fc2ed58b24284dd2b585eee78fb878f5/2.8.3.0/en-US/AoLauncher.zip"
debug="false" version="2.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance">
  <DataSourceItem>
    <Name>DS14</Name>
    <DataSourceType>INFO_PROVIDER</DataSourceType>
     <Configuration>
      <ForcePrompt>1</ForcePrompt>
      <Variables>
        <Variable name='CONTINENT'>EU; US</Variable>
        <Variable name='VALUE'>100</Variable>
      </Variables>
    </Configuration>
    <HanaConnection>
      <HanaDestination>
        <SystemId>BO5</SystemId>
        <Url>http://hana-client-2.mo.sap.corp:8005</Url>
        <Language>EN</Language>
      </HanaDestination>
      <BasicAuthentication>
        <User>HANAUse</User>
```

```
        <Password>Welcome3</Password>
      </BasicAuthentication>
    </HanaConnection>
  </DataSourceItem>
</AnalysisLauncher>
```

4.9.4 Example: Open a workbook saved on the BI platform

The following example shows a launcher file that starts Analysis and opens the workbook ATJ7dl that is saved on the BI platform. The workbook contains two data sources from two different systems, a BW system and a HANA system. Both systems are configured on the BI platform. In Analysis, it opens the workbook and executes the forced refresh as defined in the file.

```
<?xml version="1.0" encoding="utf-8"?>
<AnalysisLauncher  xmlns="AOLauncher" xsi:schemaLocation="https://
help.sap.com/doc/fc2ed58b24284dd2b585eee78fb878f5/2.8.3.0/en-US/AoLauncher.zip"
debug="false" version="2.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance">
  <RepositoryItem>
    <Name>ATJ7dl</Name>
    <Configuration>
      <ForceRefresh>1</ForceRefresh>
    </Configuration>
    <BIPConnection>
      <BIPDestination>
        <Url>http://bw-client.mo.sap.corp:8080/Session</Url>
        <Language>EN</Language>
      </BIPDestination>
      <BasicAuthentication>
        <User>ADMIN</User>
        <Password>admin1</Password>
      </BasicAuthentication>
      <BIPRedefinedConnectionItem>
        <CUID>AfyW67v2TJdEoNUgSG7GbpA</CUID>
        <BoeId>706766</BoeId>
        <BWConnection>
          <BWDestination>
            <SystemId>RIW</SystemId>
            <MessageServer>ldcikit.wdf.sap.corp</
MessageServer>
            <Client>003</Client>
            <Language>EN</Language>
          </BWDestination>
          <BasicAuthentication>
            <User> TestAO</User>
            <Password>display</Password>
          </BasicAuthentication>
        </BWConnection>
      </BIPRedefinedConnectionItem>
      <BIPRedefinedConnectionItem>
        <CUID>Ad3VanMJah1KpxnstrPZXD8</CUID>
        <BoeId>35820</BoeId>
        <HanaConnection>
          <HanaDestination>
            <SystemId>ANA</SystemId>
            <Url>http://cc1.only.sap:8000</Url>
            <Language>EN</Language>
          </HanaDestination>
          <BasicAuthentication>
            <User>USER1</User>
            <Password>Initial1</Password>
```

```
          </BasicAuthentication>
        </HanaConnection>
      </BIPRedefinedConnectionItem>
    </BIPConnection>
  </RepositoryItem>
</AnalysisLauncher>
```

4.9.5 Example: Open a workbook saved in SAP NetWeaver

The following example shows a launcher file that starts Analysis and opens the workbook WB10 for the user TestUse. It is stored in the BW system RIW on an SAP NetWeaver server. In Analysis, it opens the workbook and executes the forced refresh as defined in the file.

```
<?xml version="1.0" encoding="utf-8"?>
<AnalysisLauncher  xmlns="AOLauncher" xsi:schemaLocation="https://
help.sap.com/doc/fc2ed58b24284dd2b585eee78fb878f5/2.8.3.0/en-US/AoLauncher.zip"
debug="false" version="2.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance">
  <RepositoryItem>
    <Name>WB10</Name>
    <Configuration>
      <ForceRefresh>true</ForceRefresh>
    </Configuration>
    <BWConnection>
      <BWDestination>
        <SystemId>RIW</SystemId>
        <MessageServer>ldcikit.wdf.sap.corp</MessageServer>
        <Client>003</Client>
        <Language>EN</Language>
      </BWDestination>
      <BasicAuthentication>
        <User>TestUse</User>
        <Password>test4ever</Password>
      </BasicAuthentication>
    </BWConnection>
  </RepositoryItem>
</AnalysisLauncher>
```

4.10 Providing hyperlinks to Analysis documents

You can provide hyperlinks to Analysis documents to offer users direct access to related information.

You have the following options to create a hyperlink:

- OpenDocument
  This web application is available for Analysis documents saved on the BI platform 4.2 SP5 or higher.
- ICF Services
  These services are available for documents saved on a BW server.
- iViews
  iViews can be created in the SAP Enterprise Portal for documents saved on a BW server.

You can add variable values for prompts used in the document to the hyperlink URLs.

Related Information

Using OpenDocument to view Analysis documents [page 151]
Using ICF Services to view Analysis documents [page 151]
Using SAP Enterprise Portal iViews to view Analysis documents [page 152]
Adding prompts to hyperlinks [page 153]

4.10.1 Using OpenDocument to view Analysis documents

For Analysis documents saved on the BI platform 4.2 SP5 or higher, you can use the OpenDocument function to create a URL. OpenDocmuent is a web application that processes incoming URL requests for documents and any other viewable object type in the Central Management Server (CMS), and delivers the correct document to the end user in the appropriate viewer.

OpenDocument links are created in the BI Launch Pad.

1. In the BI Launch Pad, go to the *Documents* tab.
2. Select a document.
   This could be an Analysis workbook or presentation.
3. Choose *More Actions* > *Document Link*.
   A dialog box with the OpenDocument URL appears.
4. Copy the OpenDocument link and click *OK* to close the *Document Link* dialog box.
5. Paste the link to share the document.
   You can paste the copied OpenDocument link in an email message to send to recipients or you can add it to another Analysis document.
6. Optional step: You can add values for prompts to the URL.

When a recipient clicks an OpenDocument link in a browser, the BI launch pad logon dialog box appears. After the recipient enters valid logon credentials, the corresponding Analysis application is opened, either Analysis for Microsoft Excel or Analysis for Microsoft PowerPoint, and the document is displayed.

For more information on the syntax of an OpenDocument link and the parameters you should include when creating one, refer to the Viewing Documents Using OpenDocument.

Related Information

Adding prompts to hyperlinks [page 153]

4.10.2 Using ICF Services to view Analysis documents

ICF Services are delivered with SAP BW and SAP BW/4HANA.

ICF services are based on the *Internet Communication Framework* (ICF) of the SAP Application Server for ABAP. ICF services are HTTP services that are used to execute HTTP request handlers. The BW HTTP services allow you to display or exchange BW data using a URL. Some of these services are implemented as Web services.

You can use these services to create hyperlinks to Analysis documents (workbooks and presentations) that are saved on a BW server. You can also include values for prompts in the URL.

The URL of an ICF Service for an Analysis document has the following structure:

```
<Protocol>://<Server>:<Port>/sap/bw/analysis?
application=<application>&object_type=<type>&object_id=<id>
```

The value for `application` can be `excel` or `powerpoint`.

The value for `object_tpye` can be `document` (for workbooks and presentations), `query`, `query_view` or `infoprovider`.

The value for `object_id` is the technical name of the object in the BW system.

> **Example**
>
> ICF hyperlink to an Analysis document with variables
>
> ```
> <Protocol>://<Server>:<Port>/sap/bw/analysis?
> application=excel&object_type=document&object_id=test01&varTEST1=05&varTEST2=08
> ```
>
> This example shows a link to the Analysis workbook test01 and values for the prompts TEST1 and TEST2.

You can include the ICF hyperlink in an email message to send to recipients or you can add it to another Analysis document.

When a user clicks an ICF services link in a browser, the BW logon dialog box appears. After the recipient enters valid logon credentials, the corresponding Analysis application is opened, either Analysis for Microsoft Excel or Analysis for Microsoft PowerPoint, and the document is displayed.

For more information on creating URL with ICF Services, see the SAP BW documentation at Web Services and ICF Services.

Related Information

Adding prompts to hyperlinks [page 153]

4.10.3 Using SAP Enterprise Portal iViews to view Analysis documents

In the SAP Enterprise Portal , you can create iViews to launch and share Analysis documents (workbooks and presentations).

The documents to be included in an iView have to be saved in a BW system and the ICF service sap/bw/analysis needs to be activated in the corresponding BW system.

The package com.sap.ip.bi.bexlauncher contains two iViews as templates for *Analysis for Microsoft Excel* and *Analysis for Microsoft PowerPoint*.

The iViews are created in the SAP Enterprise Portal Content Studio:

1. In the Portal Content Studio choose *Content Administration* > *Portal Content Administration* > *Portal Content* > *Platform Add-Ons* > *Business Intelligence* > *iViews*.
2. Right-Click *iViews* and choose *New* > *iView* > *iView from Template*.
3. In the *Template Selection* step, select *Analysis for Microsoft Excel* and *Next*.
   If you want to include a presentation, select *Analysis for Microsoft PowerPoint* in this step.
4. In the *iView Wizard*, enter *Name* and *iView-ID* and select *Next*.
5. Enter the *Application Parameters* and select *Next*.
   The parameters OBJECT_TYPE and OBJECT_ID are required.
   The value for OBJECT_TYPE can be DOCUMENT (for workbook and presentation), QUERY or QUERY_VIEW.
   The value for OBJECT_ID is the technical name of the object in the BW system.
   Example how the parameters should be entered: `OBJECT_TYPE=DOCUMENT&OBJECT_ID=WB1`
   With these parameters, the iView will launch Analysis with workbook WB1.
6. Select *Finish* to create the iView.
   The iView is added to the *Business Intelligence* area.
7. Right-Click the new iView and select *Preview*.
8. Copy the URL.
   You can paste the link to share it with other users.
9. Optional step: You can add values for prompts to the URL

In the SAP Enterprise Portal Content Sudio, you can change and configure the iView. For example, you change the authorizations with the context menu *Open* > *Permissions*.

More Information

You can find more information on creating and launching iViews in:

- SAP Enterprise Portal documentation at Creating and Editing iViews.
- SAP Note 1799515
- SAP Note 1825429

Related Information

Adding prompts to hyperlinks [page 153]

4.10.4 Adding prompts to hyperlinks

You can add prompts (variables) and their values to hyperlinks to Analysis documents.

To add prompts to hyperlinks, use the following syntax rules:

- Each variable name and values pair is one request parameter started with &.
- Each parameter is flagged with prefix `var`.
- You can add a single value, multiple values and ranges.
  For adding values, you have to follow the syntax rules for entering values: Syntax for Entering Values
  For multiple values and ranges, you have to use URL encoding according to ASCII character-set. This is %20 for space, for example.
- You can add the data source alias in square brackets.
  This parameter is optional. It can be used if different values for different data sources should be specified and the variables are not merged in the document.

Examples for prompts in hyperlinks

Example	Description
`&var0Product=P01`	Adding this prompts definition to a URL, the value for prompt 0Product is set to P01.
`&var0Product=P01&var0Country=France`	Adding this prompts definition to a URL, the value for prompt 0Product is set to P01 and the value for prompt 0Country is set to France.
`&var[DS_1]0Product=P01`	Adding this prompts definition to a URL, the value for prompt 0Product is set to P01 for data source DS_1.
`&var[DS_1]0PRODUCT=P01%3B%20P02`	Adding this prompts definition to a URL, the value for prompt 0Product is set to P01 and P02 for data source DS_1.
`&var[DS_2]0PRODUCT=P03%20-%20P10`	Adding this prompts definition to a URL, the value for prompt 0Product is set to the range P03-P10 for data source DS_2.

Example

OpenDocument link with prompts

```
<Protocol>://<Server>:<Port>/BOE/OpenDocument/opendoc/openDocument.jsp?
sIDType=CUID&iDocID=AQ6Kt6A8a3BOst3dpkPU2Ak&var[DS_1]0PRODUCT=P01%3B%20P02&var[DS
_2]0PRODUCT=P03%20-%20P10
```

This example URL consists of three elements: `http://mo-54885826a.mo.sap.corp:8080/BOE/OpenDocument/opendoc/openDocument.jsp?sIDType=CUID&iDocID=AQ6Kt6A8a3BOst3dpkPU2Ak` is the OpenDocument link generated for a workbook saved on the BI platform. `&var[DS_1]0PRODUCT=P01%3B%20P02` specifies the values P01 and P02 for prompt 0Product for data source DS_1. And `&var[DS_2]0PRODUCT=P03%20-%20P10` specifies the value range P03 to P10 for prompt 0Product for data source DS_2.

4.11 Caching documents

Caching allows you to store copies of frequently used documents, Analysis workbooks and presentations, on a local client machine for quick access. In Analysis, caching can be used for documents that are stored on a SAP BW server or on a BI platform. The documents will be cached for each server (BW system) independently.

If you open a document that is already cached, the server provides information about the last change of the document. If the cached version is still valid, the cached version will be opened. If there is an updated version on the server, the cached version will be invalidated and the document is downloaded from the server.

The documents will be stored in the Analysis cache in an encrypted format. This encryption is specific for the current user and machine. This means that only the user that stored the document in the cache will be able to open the document from the cache. Furthermore, the document can only be opened on the same machine. The encryption uses the Microsoft Windows Data Protection (DPAPI) in combination with the Rijndael (AES) algorithm.

Caching documents stored on a SAP BW server

The documents can be cached if they are opened from Analysis and if they are launched from a BW system (transactions RAAOE/RAAOP).

To enable caching for documents stored on a SAP BW server, the following prerequisites have to be fulfilled:

- In the BW system(s), you enable document caching.
  Open report SAP_RSADMIN_MAINTAIN in transaction SA38 and add the object **`AO_DOC_CACHE_ACTIVE`** with value **`X`**.
- In Analysis, the setting `IsCachingDocuments` is set to `true`. This is the default value for the setting.
- You use a SAP BW releases listed under *SAP BW Server* in this guide.
  If you use lower release versions, you could check SAP Note 2179379 for correction instructions.

Caching documents stored in a SAP BW/4HANA system

The documents can be cached if they are opened from Analysis and if they are launched from a BW/4HANA system (transactions RAAOE/RAAOP).

Caching for documents stored in a SAP BW/4HANA system is always enabled.

Caching documents stored on a BI platform

The documents can be cached if they are opened from Analysis or if they are launched from the BI platform.

To enable caching for documents stored on a BI platform, the following prerequisites have to be fulfilled:

- In the Central Management Console, the property `Enable Caching of Documents` is selected. By default, the property is not selected.

  The property is available in the CMC under *Applications* > *Analysis Office Runtime* > *Actions* > *Properties*.
- You use a BI platform with release 4.2 SP3 or higher.

Related Information

SAP BW [page 118]
Settings for the Analysis Plug-in [page 28]

4.12 Customizing the User Interface

You can customize certain user interface areas of Analysis to meet your business needs.

> **i** Note
>
> In Analysis versions less than 2.4, the display of the following commands was specified with file system settings: Convert to Formula, Create Web Application, Launch Query Designer and Planning group.
>
> When switching to Analysis 2.5 from a version less than 4, for example 2.3, Analysis takes the definition from the setting in the file system. If the command was displayed in the 2.3 installation, it will also be displayed in the 2.5 installation.

To see how you can customize user interface areas using profiles, check out this how-to video: https://youtu.be/X1jXGF8NiFs

4.13 Defining style sets for crosstabs

A style set is a selection of Microsoft Excel cell styles that is applied by Analysis to format the cells of a crosstab. Whenever users insert a new crosstab in a workbook, the styles of the current default style set are used to format the crosstab cells. You and your users can change the applied style set in the analysis. With Analysis, the following style sets and their cell styles are installed:

SAP Tradeshow Plus
SAP Blue
SAP Black&White

By modifying the cell styles of these style sets, you can create own style sets and share them with your users.

SAP standard styles are availabe after the installation of the Add-In. You can modify them in the *Styles* group on the *Home* tab of Microsoft Excel.

SAP custom styles are not availabe after the installation of the Add-In, but you can create them in the *Styles* group on the *Home* tab of Microsoft Excel.

For more information on creating and sharing styles, see the *Analysis Plug-in User Guide* at SAP Analysis for Microsoft Office.

4.14 Query runtime statistics

Analysis supports the query runtime statistics of SAP BW. You can activate the query runtime statistics in the Analysis backstage area at *File* > *Analysis* > *Troubleshoot* or with the file system setting *Profiling*.

Using the query runtime statistics, you can find out how much time the execution of certain user actions require in Analysis and in the BW analytic engine. The system records the performance-critical parts of the processing (statistics events). It calculates the net times by calculating the runtime of an event using the difference between the start and end times (minus the times for other events called from within the event).

Each Analysis workbook has its own connections to the BW system. When the user closes a workbook, the connection to the BW system is also closed. The first workbook - for which a connection to a BW system is opened - shares its connections with the open services of Analysis. This means that the *Insert Data Source* dialog box reuses the connection from the first workbook.

The first connection to a BW system in a workbook is the “master” connection. The query runtime statistics for Analysis use the BW system of this master connection as the master system.

With the query runtime statistics activated inAnalysis, all events raised by the BI consumer services client code and by the ABAP server code are written to the statistics tables of the BW system. Analysis also raises a small additional set of events, which facilitates analysis of the other events.

If the Analysis events should be written to the RSDDSTAT_OLAP view (transaction code SE16), which contains the data from the front end and calculation layer events, they need to be in table RSDDSTATEVENTS as well. For more information, see SAP note 1462547.

The table below provides an overview of the Analysis events:

Event ID	Long Text	Description
20001	Net Application type	Type of .NET application (objnm is PIONEER EXCEL for example)
20002	Net Scenario	Scenario type of .NET application (refresh for example)
20003	Net Document ID	Document ID of a .NET application (only one per session)
20010	Command	Describes what the user did in the step.
20200	User at dialog	The user waits at a dialog or does actions that return quickly.

Most user actions in Analysis will write an entry with event 20010. The time a user spends on a dialog during execution of the command and not executing another command will be made visible with event 20200. Each start of a statistic session will also contain events 20001, 20002 and 20003.

You can check the statistics in the Analysis backstage area at *File* > *Analysis* > *Troubleshoot* > *Show Workbook Profiling*.

For more information about the query runtime statistics, see the SAP BW documentation on the SAP Help Portal at BI Query Runtime Statistics.

Related Information

Settings for the Analysis Plug-in [page 28]
Troubleshooting in Analysis [page 185]

4.15 Security

4.15.1 User management and authentication

Usage with SAP BW

Using Analysis with SAP BW as platform, you have to configure user accounts in the connected BW systems. These user acounts can also be used for the local usage of Analysis.

For more information, see the SAP NetWeaver Security Guide on the SAP Help Portal at http://help.sap.com.

Usage with SAP BusinessObjects Business Intelligence Platform

Using Analysis with the business intelligence platform, you have to configure user accounts in the connected BW systems as well. You also have to configure user accounts on the business intelligence platform server.

> **i Note**
>
> Make sure that the user passwords on the business intelligence platform server have not expired. Analysis needs up-to-date credentials for users logging on to the platform.

For more information, see chapter 'Managing Users and Groups' in the Business Intelligence Platform Administrator Guide.

Usage with SAP Analytics Cloud

Using Analysis with SAP Analytics Cloud data sources, you have to configure user accounts on the connected SAP Analytic Cloud servers. These user acounts are used for the local usage of Analysis.

For more information about user management in SAP Analytics Cloud, see the Users section in the SAP Analytics Cloud documentation on the SAP Help Portal.

4.15.2 Authentication and single sign-on

Single Sign-On with SAP BW

With SAP BW as platform, single sign-on works if the following conditions are true:

- Secure Network Communications (SNC) is installed on each client PC. For more information, see SAP Help Portal at Secure Network Communications .
- Each end user has a user account in the connected BW system.

The user signs on once to the client-side Secure Network Communications (SNC) with his/her credentials, and is then able to connect to the BW systems without having to enter the BW user name and password.

The same settings are valid for using Analysis locally.

Single Sign-On with SAP BusinessObjects Business Intelligence platform

You can use two-factor authentication to log on to a BI platform with single sign-on. In Analysis, you can specify the two-factor authentication in the BoeConfiguration settings: `TwoFactorAuthenticationCertificate`, `TwoFactorAuthenticationDisabled` and `TwoFactorAuthenticationUrl`. The two-factor authentication to BI platform is available as of SAP Analysis 2.6 SP1 and SAP BI platform 4.2 SP5.

On the BI platform, you need to configure SSL in Tomcat for SOAP Web Services to use the two-factor authentication. For more information, see the SAP Help Portal at Configuring SSL in Tomcat.

Once users are logged on to SAP BusinessObjects Business Intelligence platform, single sign-on enables users to access SAP systems without having to provide their logon credentials. Single sign-on works if the following conditions are true:

- BusinessObjects Business Intelligence platform is configured correctly for single sign-on. For more information, see “Configuring SAP authentication” in the *SAP BusinessObjects Business Intelligence Platform Administration'Guide* at SAP BusinessObjects Business Intelligence Platform.
- In the Central Management Console under OLAP-connections, the parameter *Authentications* is set to **SSO** for the BW systems that should be used with single sign-on.
- In the Central Management Console under *Users and Groups* > *User List*, the BI platform user accounts need to be mapped to the BW user accounts: In the *Properties* dialog box of a BI platform user, click *Assigns Alias...* to add the corresponding BW user.
- The SAP BW systems are configured as external authentication system. Proprietary SAP tokens (assertion tickets) are used to provide a mechanism that supports single sign-on for Analysis users connecting to BW systems. For more information, see “Setting up single sign-on to the SAP system” in the *SAP BusinessObjects Business Intelligence Platform Administration'Guide* at SAP BusinessObjects Business Intelligence Platform.

With single sign-on, the user signs on once to SAP BusinessObjects Business Intelligence with his/her credentials (when inserting a data source in Analysis), and is then able to connect to the BW systems without having to enter a BW user name and password.

Single Sign-On with SAP HANA data source

To use a local HANA connection, you have to enable SSO.

For more information, see Defining connections to SAP HANA [page 135]

Related Information

BoeConfiguration [page 29]

4.15.3 Authorizations

In Analysis, users can store documents (workbooks and presentations) on the business intelligence platform, on the SAP NetWeaver platform or as a local file. For security reasons, make sure that users do not have administrator rights on the client PCs. Otherwise the users could access other users log files on the client PC for example.

Authorizations for local files

To store documents locally, you can use a file share and assign authorizations for the file share to manage who should be able to save and open documents.

Authorizations for the SAP BusinessObjects BI platform

To store documents on the business intelligence platform, Analysis uses the SAP BusinessObjects Business Intelligence authorization concept to manage the folders containing Analysis workbooks and PowerPoint files. For more information on configuring the authorizations for these folders, see chapter Setting Rights in the *Business Intelligence Platform Administrator Guide* at How rights work on BI platform.

Authorizations for the SAP NetWeaver platform

To store documents on the SAP NetWeaver platform, Analysis uses the SAP NetWeaver BW authorization concept for data access management. The authorization object for using SAP NetWeaver as platform is S_RS_AO.

The authorization object S_RS_AO has the following fields:

Authorization Field	Short Description and Options
RSAO_OBJID	Analysis Client Technical Name The options are: technical name of an Analysis document, a string ending with * for a namespace (e.g. ZZ*) and a single * to give the authorization for all documents.
RSAO_OBJTY	Analysis Client Object Type The options are: Microsoft Excel, Microsoft PowerPoint, Excel NW Embedded, PowerPoint NW Embedded, Analysis Application, Design Studio Extension and * to select all options.
RSZOWNER	Owner (Person Responsible) for a Reporting Component The options are: User ID for a single user, a group of users (team), the variable $USER and * to authorize all users.
ACTVT	Activity The options are: Create, Change, Display, Delete and * to select all options. The authorization options are only related to the Analysis documents and not to the data of the underlying data source. For example, a user who is authorized to change a workbook (option: Change), is not automatically authorized to change the data of the underlying data source in the BW system.

In the BW system, the authorizations are maintained in transaction PFCG *Role Maintenance*.

A role can contain the authorization for several users, for example for user A and user B. If user A wants to open a workbook in the *Role* section in the *Open Documents* dialog in Analysis, he will only see the documents he is authorized to see, even if there are other documents attached to the role and user B.

You can use the variable $User to authorize all users for workbooks they created themselves. The variable $USER is replaced by the corresponding user name during the creation with the authorization check. You can enable the variable $USER with SAP Note 1929782.

Analysis does not support the concept of favorites. A user can see documents he created in the *My Documents* section in the *Open Documents* dialog. And in the *Role* section in the *Open Documents* dialog, a user will see the documents he is authorized to see.

For more information, see the SAP BW documentation on the SAP Help Portal at Overview Authorization Objects.

Related Information

Examples: Authorizations for the SAP BW platform [page 162]

4.15.3.1 Examples: Authorizations for the SAP BW platform

The following examples show how you can maintain authorizations on the SAP BW platform (transaction PFCG).

Authorization with restriction on activity

Authorization Field	Value
RSAO_OBJID (Analysis Client Technical Name)	*
RSAO_OBJTY (Analysis Client Object Type)	Microsoft Excel
RSZOWNER (Owner)	*
ACTVT (Activity)	Create; Display

With these authorization settings, every user can save workbooks with an arbitrary name. All user can find the workbooks in the *Open Documents* dialog and display them in Analysis.

Authorization with restriction on owner

Authorization Field	Value
RSAO_OBJID (Analysis Client Technical Name)	Z*
RSAO_OBJTY (Analysis Client Object Type)	Microsoft Excel
RSZOWNER (Owner)	A

Authorization Field	Value
ACTVT (Activity)	*

Authorization Field	Value
RSAO_OBJID (Analysis Client Technical Name)	X*
RSAO_OBJTY (Analysis Client Object Type)	Microsoft Excel
RSZOWNER (Owner)	B
ACTVT (Activity)	*

With these authorization settings, user A can create workbooks starting with an Z (naming convention) and user B can create workbooks with naming convention X*. Both users can also display, change or delete workbooks with these naming conventions.

User A cannot see any workbook with naming convention X* in the *Open Documents* dialog and user B will not find workbooks with naming convention Z*.

You can use the variable $USER as Owner to avoid to define the authorization for each user separately.

Authorization Field	Value
RSAO_OBJID (Analysis Client Technical Name)	*
RSAO_OBJTY (Analysis Client Object Type)	Microsoft Excel
RSZOWNER (Owner)	$USER
ACTVT (Activity)	*

With these authorization settings, all users have the authorization for workbooks they created themselves. The variable $USER is replaced by the corresponding user name during the creation with the authorization check.

If user A creates the workbook Y2, he will be the owner of the workbook after saving. User A can find the workbook in the Open Documents dialog and display and change it again. User B will not find the workbook as user A is the owner.

Authorization for a team

Authorization Field	Value
RSAO_OBJID (Analysis Client Technical Name)	FC*; PF*
RSAO_OBJTY (Analysis Client Object Type)	Microsoft Excel
RSZOWNER (Owner)	A,B,C,D
ACTVT (Activity)	*

A team consisting of the users A, B, C and D, has the authorization to create workbooks with naming convention FC* and PF*. The four members of the team can also display, change or delete workbooks with these naming convention.

> → Recommendation
>
> The naming conventions for the technical names of the workbooks need to be set up as detailed as the organization structure and the different authorization profiles are. So users can only see the workbooks which contain functions they are allowed to execute.

4.15.4 Network and communication security

Your network infrastructure is extremely important in protecting your system. Your network needs to support the communication necessary for your business needs without allowing unauthorized access.

In some scenarios Analysis is enabled to work with HTTP. It is strongly recommended to only use this for temporary testing. In any scenario in which authentication data of real users is involved it is strongly recommended to use encrypted communication only (e.g. HTTPS)

Usage with SAP BW

If you use SAP BW as platform, the client PC communicates directly with the BW server. The BW system provides data access, authorizations for the data and OLAP functions for navigation in the data. The following steps describe the communication sequence:

1. There are two options:
   - The user starts Analysis and inserts a data source from the BW system into a new workbook or presentation.
   - The user starts Analysis and opens a workbook or presentation stored in the BW system.

2. The user logs on to the BW system to get the data.

   > **i** Note
   >
   > If single sign-on is activated the user can access the BW system directly.

3. The user navigates in the data.
4. The user saves the Analysis workbook or PowerPoint in the BW system.

In steps 2 and 3, Analysis on the client PC requests data from the BW server. This communication is carried out with a synchronous Remote Function Call (RFC) connection. You can protect this RFC connection using Secure Network Communications (SNC). For more information, see SAP Help Portal at Secure Network Communications.

Usage with SAP BusinessObjects Business Intelligence / SAP BusinessObjects Enterprise

The following steps describe the communication sequence and provide an overview of the communication channels:

1. There are two options:
   - The user opens an existing Analysis workbook or PowerPoint file located on the business intelligence platform server. S/he has to log on to the business intelligence platform.
   - The user starts Analysis and inserts a data source from the BW system into a new workbook or PowerPoint file. S/he has to log on to business intelligence platform. Analysis receives the defined connections and the system information for the BW system(s) from the business intelligence platform.
2. The user logs on to the BW system to get the data.

   > **i** Note
   >
   > If single sign-on is activated the user can access the BW system directly.

3. The user navigates in the data.
4. The user saves the Analysis workbook or PowerPoint file on the business intelligence platform server.

In steps 1 and 4, Analysis on the client PC communicates with the business intelligence platform server for requesting system information and saving the files. This communication is carried out with a Web service connection using HTTP or HTTPS as protocols. To provide better security with the HTTP protocol, the Web service connection should use HTTP POST operations, rather than HTTP GET operations. Configure the Web service connection on the business intelligence platform server accordingly.

You can protect this Web service connection using Secure Sockets Layer (SSL). Analysis uses the standard ports for HTTP and HTTPS, which are configured in your network. For more information about the configuration of the Web service connection on the business intelligence platform server, see “Working with Web Application Container Servers” and “Configuring HTTPS/SSL” in the *BusinessObjects Business Intelligence Administrator's Guide* at SAP BusinessObjects Business Intelligence Platform.

In steps 2 and 3, Analysis on the client PC requests data from the BW server. This communication is carried out with a synchronous Remote Function Call (RFC) connection. You can protect this RFC connection using Secure Network Communications (SNC). For more information, see SAP Help Portal at Secure Network Communications.

4.15.5 Handling insecure connections

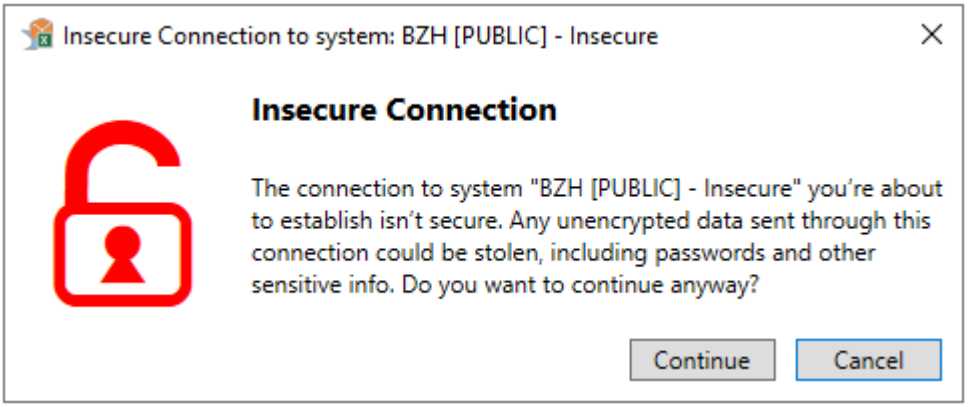
Analysis checks the security of a connection to a backend system when a you start to establish the connection, for example, to insert a data source. A connection could be secure, insecure, not reachable (timeout exceptions, proxy issues, 404 http status code) or undefined (unauthorized or other exceptions).

While using a not secure connection, any unencrypted data sent through this connection could be stolen, including passwords and other sensitive information.

An insecure connection could be:

- a connection to a BW system without SNC (Secure Network Communication) or below SNC quality 3
- a connection without HTTPS to a BI platform, SAP HANA or SAP Analytics Cloud

When you're trying to establish an insecure connection, Analysis shows a warning:

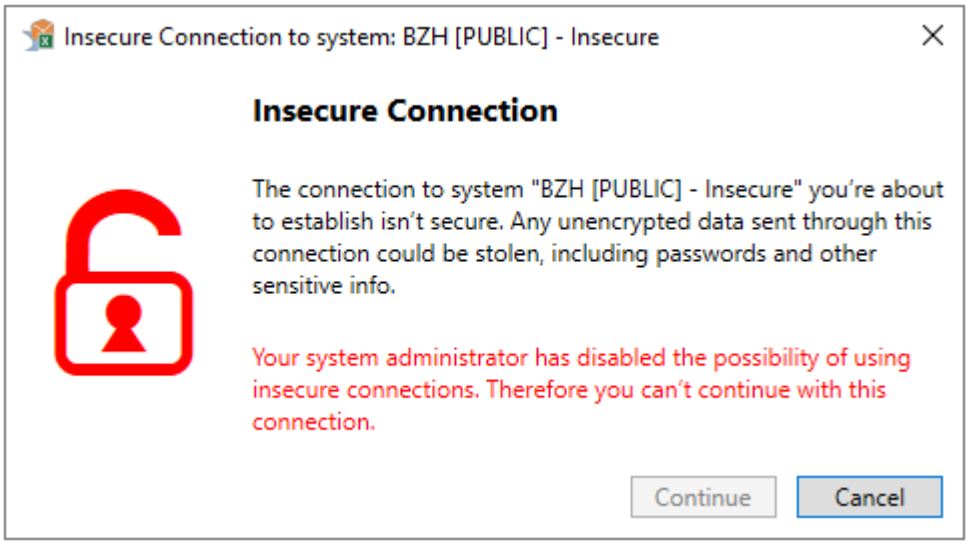


You can select *Continue* to establish the insecure connection or *Cancel* to stop the connection.

The options in the dialog depend on the configuration for the setting `AllowInsecureConnections`. The default value for this setting is `Prompt`. The dialog is displayed as above, and the option *Continue* is enabled. If you change the parameter value to `Yes`, Analysis establishes an insecure connection without showing the dialog, and a log entry is created.

If you change the parameter value to `NoInsecure`, the dialog will be displayed for not reachable and undefined connections. Insecure connections are blocked. If you change the parameter value to `PromptInsecure`, the dialog will ask for insecure connections. Not reachable and undefined connections are blocked.

If you change the parameter value to `No`, the dialog will be displayed and the option *Continue* is disabled:

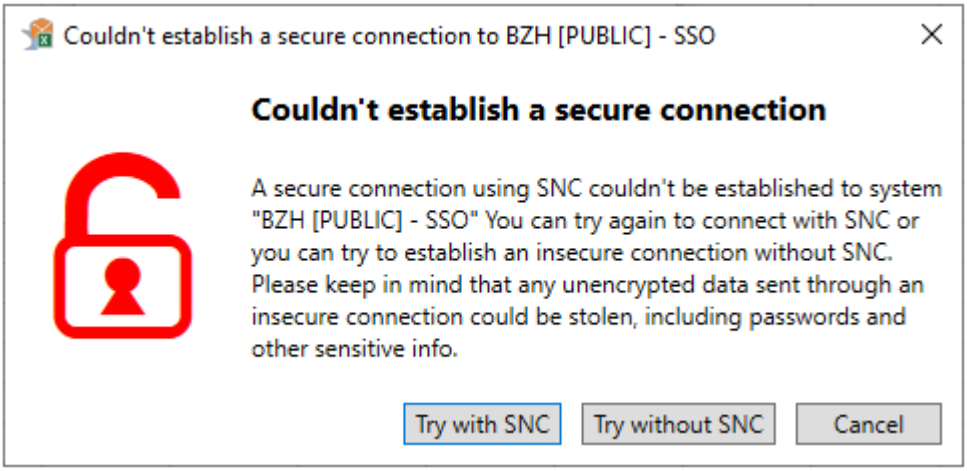


If Analysis can't establish a secure connection (SNC) to a selected BW system, another dialog can be displayed where you can choose one of the follwing options:

- Try again with SNC to establish a secure connection
- Try without SNC to establish an insecure connection
- Cancel without establishing a connection

With the setting `EnableWarningForFailedSnc`, you can specify whether the dialog that a secure connection couldn't be established should be displayed.

The default value is `True`. This means that the dialog will be displayed.



If you change the parameter value to `False`, the dialog won't be displayed, and Analysis tries to establish an insecure connection automatically, even if the setting `AllowInsecureConnections` is set to `No`.

Note that the setting `AllowInsecureConnections` influences the options in this dialog. If this setting is set to `Yes` or `Prompt`, the option Try without SNC will be enabled. If it is set to `No`, the option Try without SNC will be disabled.

For getting an overview of making secure connections between Analysis and its targets, please see the SAP Knowledge Base Article Analysis for Office Secure Connections.

4.15.6 Data Storage Security

Using the business intelligence platform with Analysis, data is stored on the SAP BusinessObjects Business Intelligence server. Access to the Analysis workbooks and PowerPoint files is protected by the authorization concept of the corresponding folders on the business intelligence platform server. For more information on configuring the authorizations for these folders, see “Setting Rights” in the *BusinessObjects Business Intelligence Administrator's Guide* at SAP BusinessObjects Business Intelligence Platform.

If you use Analysis locally, users store the Analysis workbooks and PowerPoint files with the BW data on a file share or on the client PCs. You can protect the access to the data on the file share with authorizations. To ensure that the locally stored data cannot be viewed by non-authorized users, we advise against giving users administrator rights on the client PCs.

Locally stored Analysis documents are not protected by SAP Analysis. Protection needs to be provided by the respective device management (access control or encryption, for example).

4.15.7 Launcher and Scheduling

If Analysis is launched from a website, this usually involves the creation of a .sapaox file. This .sapaox file will then contain assertion tickets which allow the authenticated login to the target servers. This can include BW servers as well as BI platform servers.

In order to secure this assertion ticket it is essential that only HTTPS is used, whenever a .sapaox file is generated.

One scenario in which this mechanism is used is starting an Analysis workbook from the BI Launchpad (in the BI platform).

You can find more information about assertion tickets in the SAP NetWeaver Security Guide for Using Logon Tickets with AS ABAP.

Scheduling and Publication

A .sapaox file is also generated when an Analysis workbook is scheduled or published in the BI Platform. Within the BI Platform, the java process is supplied with the user object of the user for which the Analysis workbook is to be executed. From this user object, the Analysis precalculation java service gets the assertion tickets and writes them into the .sapaox file in the windows folder of the node that is configured to execute the Analysis precalculation java service. The service then calls the Analysis precalculation tool which executes with the .sapaox file and uses the content of the .sapaox file to logon to the target servers.

The .sapaox file is stored in this folder on the precalculation node:
`C:\Program Files (x86)\SAP BusinessObjects\SAP BusinessObjects Enterprise XI 4.0\Data\procSched\MySIA.AdaptiveJobServer\`

Due to the usage in this mechanism these folders on the precalculation nodes should be secured appropriately.

4.15.8 VBA

Workbooks can contain VBA code. VBA is a powerful programming language. VBA should only be used if additional technical and organizational measures are in place. You could use trusted location or workbook and macro signatures, for example.

For more information, see the Microsoft Office documentation:

- Description of digital signatures and code signing in workbooks in Excel
- Digitally sign your macro project

4.15.9 Security for additional applications

3rd party applications

Analysis uses the Essential Studio of Syncfusion Windows Forms as a UI control library. This application does not need any specific security measures.

SAP applications

As data sources, Analysis takes the data from SAP Business Warehouse and SAP Analytics Cloud.

For more information on security aspects for SAP BW, see SAP Help Portal at Security Guide for Usage Type BI.

For more information on security aspects for SAP Analytics Cloud, see the Security section in the SAP Analytics Cloud documentation on the SAP Help Portal.

If you use the business intelligence platform for Analysis, see "Security Concepts" in the *BusinessObjects Business Intelligence* at SAP BusinessObjects Business Intelligence Platform.

4.15.10 Logging security relevant events

Security relevant information is stored in the log file if log severity is set to `16` (Debug Information). You can use the log file to help identify any potential unauthorized access to the system. The following events are logged for example:

- successful and unsuccessful logon attempts
- start time and end time of a session
- missing authorization for BW data or objects
- type of Web Service URL to BusinessObjects Business Intelligence / BusinessObjects Enterprise

> **i Note**
>
> Access to person-related data is not logged in Analysis. You cannot track who accessed person-related data on the client. If required, we recommend using the relevant modelling tools in SAP BW instead.

Related Information

Settings for the Analysis Plug-in [page 28]
Troubleshooting in Analysis [page 185]

4.15.11 General security recommendations

The following topics provide an overview of additional security-related information and recommendations.

Virus scanner activation

As users upload Microsoft Excel and Microsoft PowerPoint files from Analysis into the business intelligence platform document repository, we recommend the use of a virus scanning application to protect your business

intelligence platform server. You should only allow your users to store the files in a specific folder in the business intelligence platform. Configure a virus scan for this folder, by using a virus scanning application installed on the same server as the business intelligence platform. Whenever a file is added or modified in this folder, the virus scanner automatically scans the file.

4.16 Logging

Analysis uses `Apache log4net` to record log and trace information. The amount of log and trace information that should be stored is defined in the log.config file.

You can switch on the default logging and tracing as it is required for support messages in the *Support Settings* dialog.

The log and trace information is stored in .glf files. You can use SAP Snap-In for Microsoft Management Console (MMC) to view these files. SAP MMC provides a graphical user interface to manage the .glf files.

After the installation of Analysis, the log.config file is available under `%programdata%\SAP\COF`. This initial file defines that only log information containing error information is recorded. This corresponds to the default support setting for *Log Severity: Error*. The log files are stored under `%temp%\SAP\COF` and have the name pattern AO_Trace_*.glf.

You can define the amount of stored trace information with the level value in the log.config file. The following options are available: DEBUG, INFO, VERBOSE, WARNING, ERROR and FATAL. For more information, see the `Apache log4net` documentation.

If you change the support setting for *Log Severity* to *Support*, the Support_log.config file under `%programdata%\SAP\COF` will be copied to `%appdata%\SAP\COF` with file name log.config overwriting the existing file. These trace files are also stored under `%temp%\SAP\COF` and have the name pattern AO_Trace_*.glf.

If you change the log.config file under `%appdata%\SAP\COF` manually (for example the value level), the support setting for *Log Severity* will be changed to *Customized*.

You can restore the initial state of the log.config file by selecting *Error* as log severity in the support settings. The log.config file will be deleted under `%appdata%\SAP\COF` and the initial file under `%programdata%\SAP\COF` will be used again.

Related Information

Troubleshooting in Analysis [page 185]

4.17 Language Recognition and Processing

In SAP Analysis for Microsoft Office, different text types are displayed in a single user interface. The texts come from the Analysis add-in itself and from the connected systems, like BW or the BI platform.

The language of the Analysis user interface itself (ribbon texts and menu entries for example) is determined by the Microsoft Office display language. The available Microsoft Office languages are processed in an intuitive algorithm.

> **i Note**
>
> If the Microsoft Office display language is not supported by Analysis, the user interface texts are displayed in English.

You have two settings in Analysis to define the user interface language: `ClientLanguage` and `DetermineClientLanguageFromOfficeLanguage`. You can use ClientLanguage to specify the language for all Analysis UI texts. With DetermineClientLanguageFromOfficeLanguage, you specify whether the Microsoft Office language should determine the language for Analysis. This setting overrules the setting ClientLanguage.

You can also use Analysis with Right-to-Left (RTL) languages, such as Hebrew and Arabic. Please note that when working with hierarchies, the *[+]/[-]* signs in the sheet may work incorrectly. In this case, you can use the options in the ribbon or in the context menu to expand and collapse hierarchy nodes.

Additionally, Analysis receives texts from the connected systems, such as master data and metadata of the selected data source. These texts are language-dependent and are displayed in the logon language of the connected system. If the user does not enter a logon language in the logon screen when inserting a data source, Analysis takes the default language from the user settings in the connected system. This is also the case if you have configured single sign-on.

There are also texts coming directly from the BI platform, for example, in the Open Dialog. If no language is configured on the BI platform, Analysis uses the language set for Microsoft Excel for these texts.

Example

The followingMicrosoft Office language values are recognized by Analysis and processed as *German* (LANGUAGE_GERMAN):

1031: // German - Germany
3079: // German - Austria
5127: // German - Liechtenstein
4103: // German - Luxembourg
2055: // German - Switzerland

Example

4.17.1 Supported languages

List of supported languages

In the following table you can see the Analysis language values and the corresponding Microsoft Office values for the available languages.

You can use the Analysis language values as

Language	Analysis Language Value	Microsoft Office Language Value
Arabic	AR	1025
Czech	CS	1029
Danish	DA	1030
German	DE	1031, 3079, 5127, 4103, 2055
English	EN	1033, 2057, 3081, 10249, 4105, 9225, 15369, 16393, 14345, 6153, 8201, 17417, 5129, 13321, 18441, 7177, 11273, 12297
Spanish	ES	3082, 1034, 11274, 16394, 13322, 9226, 5130, 7178, 12298, 17418, 4106, 18442, 58378, 2058, 19466, 6154, 15370, 10250, 20490, 21514, 14346, 8202
Estonian	ET	1061
Finish	FI	1035
French	FR	1036, 2060, 11276, 3084, 9228, 12300, 15372, 5132, 13324, 6156, 14348, 58380, 8204, 10252, 4108, 7180
Hebrew	HE	1037
Hungarian	HU	1038
Italian	IT	1040, 2064
Japanese	JA	1041
Korean	KO	1042
Dutch	NL	1043, 2067
Norwegian	NO	1044, 2068
Polish	PO	1045
Portuguese	PT	1046, 2070
Russian	RU	1049, 2073
Slovak	SK	1051
Swedish	SV	1053

Language	Analysis Language Value	Microsoft Office Language Value
Thai	TH	1054
Turkish	TR	1055
Ukrainian	UK	1058
Traditional Chinese	ZF	1028, 3076, 5124
Simplified Chinese	ZH	2052, 4100

4.18 Lifecycle Management

Lifecycle management refers to the set of processes involved in managing information related to a product lifecycle, from design to delivery. It establishes procedures for governing the entire product lifecycle, including phases such as development, production, and testing.

Analysis uses SAP BusinessObjects Business Intelligence or SAP BW as BI platform and thus its lifecycle management modules.

Related Information

Lifecycle Management with Business Intelligence Platform [page 174]
Life-Cycle Mangement with SAP BW [page 175]

4.18.1 Lifecycle Management with Business Intelligence Platform

Analysis workbooks and presentations are stored in the repository of the business intelligence Platform. With the 4.2 platform, you can save Analysis Workbooks and Analysis Presentations.

In the Central Management Console (CMC) of the business intelligence platform, you have to define connections to your SAP BW system(s). SAP Analysis gets the information of the connections in the CMC and establishes direct access to the defined BW systems for data exchange. The connection contains the fields Name, ID, and CUID. The *Name* can be maintained by the administrator, the *ID* is issued by the system and the *CUID* is constant, even after the connection has been transported.

You can use several business intelligence platform instances in your system landscape, for example one for testing and one for productive use, and you can transport objects from one instance to another. The transport of Analysis objects is based on two entities: transport of the connection defined in CMC and transport of the workbooks and presentations.

After the transport of the connection, you can update it in the target business intelligence platform instance by maintaining the connection information to the associated BW system, for example if you use different

BW systems for testing and productive use. The constant CUID ensures that the connection works correctly following the transport.

The transported workbooks and presentations use the connection CUID to read the appropriate connection information, and Analysis builds the connection to the target system or object.

> **i** Note
>
> Ensure that the dependent objects on the Analysis workbooks and presentations (InfoProviders, queries, query views) are available in the BW system that is connected to the target business intelligence platform system.

For more information about transporting objects in the business intelligence platform, see the *Information platform services Administrator Guide* at Promotion Management.

4.18.2 Life-Cycle Mangement with SAP BW

Analysis workbooks and presentations are stored in the SAP Business Warehouse metadata repository. You can store the file fomats .xls, .xlsx, .ppt and .pptx with SAP BW. The authorization object for using SAP BW as platform is S_RS_AO.

In SAP Business Warehouse, Analysis objects are stored with object type AAOE (for workbooks) and AAOP (for presentations). You can save an *Object Name* (technical name) and a *Long Description* (title) with an Analysis object.

Newly created objects are saved as an active version (A-TLOGO object). If you create a new object in a BI Content development system, it is saved as active version and delivery version (D-TLOGO object).

You can use several BW systems in your system landscape, one for testing and one for productive usage for example. You can also transport objects from one system to another. An Analysis object can contain connections to different BW systems. The system of the data source that is first inserted in the workbook or presentation, is the master system. If an object is transported, the connection to the master system will be replaced in the target system. The other connections are unaffected.

> **i** Note
>
> You have to make sure that objects dependent on the Analysis workbooks and presentations (InfoProviders, queries, query views) exist in the target BW system.

For more information about object versioning and transporting objects in SAP BW, see see the SAP BW documentation at Transporting BEx Objects.

4.19 Usage Tracking

The usage of the Analysis plug-in is tracked using SAP Web Analytics. The goal is to get a better and more profound knowledge about which features of Analysis are used by end users and in which environment it is executed (e.g. SAP Analysis version, Microsoft Excel version, Windows version, screen resolution).

The tracking has a clear focus on the product and not on the user. Therefore the tracked data is completely anonymous and does not contain any user or company related information.

You can switch off tracking completely using the file system setting `TrackUsage`.

Related Information

Settings for the Analysis Plug-in [page 28]

5 Administration for the BPC Plug-in

5.1 Embedded Models - Mandatory installation as of version 2.4

When using embedded models, to be able to work with your activities as of version 2.4, you need to install the two following SAP notes on the BW server: 2363387 and 2308662.

5.2 Creating SAP BW Connections

Prerequisites

1. Install either one of the following:
   - SAP Business Client 5.0 or 6.0
   - SAP Logon 7.4 and above. You must then set the following registry key: [HKEY_LOCAL_MACHINE\SOFTWARE(\Wow6432Node)\SAP\SAPLogon "LandscapeFormatEnabled"=REG_DWORD:00000001. See SAP Note 2220930.
2. Enable the SAP UI Landscape new format. See SAP Note 2112449.

> **i** Note
>
> For more information on the SAP UI Landscapce, see http://help.sap.com/saphelp_uiaddon10/helpdata/en/d5/66efdfdd0c47bab00b5031a4e1b580/content.htm?frameset=/en/ec/699e0817fb46a0817b0fa276a249f8/frameset.htm&node_id=840.

Creating an SAP BW connection

1. Select *File* > *BPC* > *Open my Activities* > *Connect*.
   The *Log On* dialog opens, and you can see your existing connections.
2. Select the plus icon to create a new connection.
3. Enter the following information in the dialog box that opens:
   - A name and optionally a description for the connection you are creating
   - How to access the BPC server: choose http or https and add the port number.

4. Press *OK*.

The system is already entered. The environment that is taken into account is the last one that you used when connected to the BPC web client. Once connected, you can select another environment from the view *My Activities*.

6 Data Protection and Privacy

6.1 Introduction

Data protection is associated with numerous legal requirements and privacy concerns. In addition to compliance with applicable data privacy regulations, it is necessary to consider compliance with industry-specific legislation in different countries. SAP provides specific features and functions to support compliance with regards to relevant legal requirements, including data protection. SAP does not give any advice on whether these features and functions are the best method to support company, industry, regional, or country-specific requirements. Furthermore, this information does not give any advice or recommendation in regards to additional features that would be required in particular IT environments; decisions related to data protection must be made on a case-by-case basis, under consideration of the given system landscape and the applicable legal requirements.

> **i** Note
>
> In the majority of cases, compliance with applicable data protection and privacy laws will not be covered by a product feature. SAP software supports data protection compliance by providing security features and specific data protection-relevant functions, such as simplified blocking and deletion of personal data. SAP does not provide legal advice in any form. Definitions and other terms used in this document are not taken from any given legal source.

6.2 Glossary

Term	Definition
Personal data	Any information relating to an identified or identifiable natural person ("data subject"). An identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural, or social identity of that natural person.
Purpose	A legal, contractual, or in other form justified reason for the processing of **personal data**. The assumption is that any purpose has an end that is usually already defined when the purpose starts.

Term	Definition
Blocking	A method of restricting access to data for which the primary **business purpose** has ended.
Deletion	The irreversible destruction of **personal data**.
Retention period	The period of time between the end of purpose (EoP) for a data set and when this data set is deleted subject to applicable laws. It is a combination of the residence period and the blocking period.
End of purpose (EoP)	A method of identifying the point in time for a data set when the processing of **personal data** is no longer required for the primary **business purpose**. After the **EoP** has been reached, the data is **blocked** and can only be accessed by users with special authorization (e.g. tax auditors).
Sensitive personal data	A category of personal data that usually includes the following type of information: • Special categories of personal data such as data revealing racial or ethnic origin, political opinions, religious or philosophical beliefs, or trade union membership and the processing of genetic data, biometric data, data concerning health or sex life or sexual orientation • Personal data subject to professional secrecy • Personal data relating to criminal or administrative offenses • Personal data concerning insurances and bank or credit card accounts
Residence period	The period of time after the end of purpose (EoP) for a data set during which the data remains in the database and can be used in case of subsequent processes related to the original purpose. At the end of the longest configured residence period, the data is blocked or deleted. The residence period is part of the overall retention period.
Where-used check (WUC)	A process designed to ensure data integrity in the case of potential blocking of business partner data. An application's where-used check (WUC) determines if there is any dependent data for a certain business partner in the database. If dependent data exists, this means the data is still required for business activities. Therefore, the blocking of business partners referenced in the data is prevented.

Term	Definition
Consent	The action of the data subject confirming that the usage of his or her personal data shall be allowed for a given purpose. A consent functionality allows the storage of a consent record in relation to a specific purpose and shows if a data subject has granted, withdrawn, or denied consent.

6.3 Read Access Logging

Definition

Read Access Logging (RAL) is used to monitor and log read access to sensitive data. This data may be categorized as sensitive by law, by external company policy, or by internal company policy. These common questions might be of interest for an application that uses Read Access Logging:

- Who accessed the data of a given business entity, for example a bank account?
- Who accessed personal data, for example of a business partner?
- Which employee accessed personal information, for example religion?
- Which accounts or business partners were accessed by which users?

These questions can be answered using information about who accessed particular data within a specified time frame. Technically, this means that all remote API and UI infostructures (that access the data) must be enabled for logging.

Use

In SAP Analysis, Read Access Logging (RAL) for data coming from the backend is done on read access on the respective system. Reading of content from the BI Platform such as Analysis workbooks and OLAP Connections is logged by the auditing capabilities of the BI platform.

6.4 Information Report

Definition

Each person has the right to obtain confirmation as to whether or not personal data concerning him or her are being processed.

Use

Data displayed in Analysis workbooks that are coming from the backend data sources is handled by the respective backend system:

- For more information about how to create an information report in SAP BW, see “Information Report” in the “Data Protection and Privacy” chapter of the SAP BW documentation on SAP Help Portal at https://help.sap.com.
- For more information about data protection in SAP HANA, see “Data Protection in SAP HANA” in the *SAP HANA Security Guide* on SAP Help Portal at https://help.sap.com.

In addition,workbooks may contain personal data in an unstructured way when entered by the workbook designer directly. It is up to the workboook designer to classify and manage such workbooks to provide an information report, if required.

6.5 Deletion of Personal Data

Definition

- *Simplified Blocking and Deletion*: In addition to compliance with the general data protection regulation, it is necessary to consider compliance with industry-specific legislation in different countries. A typical potential scenario in certain countries is that personal data shall be deleted after the specified, explicit, and legitimate purpose for the processing of personal data has ended, but only as long as no other retention periods are defined in legislation, for example, retention periods for financial documents. Legal requirements in certain scenarios or countries also often require blocking of data in cases where the specified, explicit, and legitimate purposes for the processing of this data has ended, but the data has to be retained in the database due to other legally defined retention periods. In some scenarios, personal data also includes referenced data. Therefore, the challenge for deletion and blocking is to first handle referenced data and finally other data, such as business partner data.

- *Deletion of personal data*: The handling of personal data is subject to applicable laws related to the deletion of such data at the end of purpose (EoP). If there is no longer a legitimate purpose that requires the use of personal data, it must be deleted. When deleting data in a data set, all referenced objects related to that data set must be deleted as well. It is also necessary to consider industry-specific legislation in different countries in addition to general data protection laws. After the expiration of the longest retention period, the data must be deleted.

Use

Data displayed in Analysis workbooks that are coming from the backend data sources is handled by the respective backend system. For example, deleting personal data on the backend system means the data will no longer be exposed to clients such as SAP Analysis.

- For more information about deletion of personal data in SAP BW, see "Deletion of Personal Data" in the "Data Protection and Privacy" chapter of the SAP BW documentation on SAP Help Portal at https://help.sap.com.
- For more information about deletion of personal data in SAP HANA, see "Deletion of Personal Data" in the *SAP HANA Security Guide* on SAP Help Portal at https://help.sap.com.

In addition, workbooks may contain personal data in an unstructured way when entered by the workbook designer directly. It is up to the workbook designer to either handle these workbooks according to the regulations or not to enter any personal data.

6.6 Change Log

Definition

If any changes are made to sensitive business data or personal data, the system should log details per change request, such as the following:

- User who has changed data
- Data and time of the change
- The change type (update, insert, deletion, single field documentation)

Use

In Analysis, logging of data modifications in the backend system is done by the respective backend system.

- For more information, see "Log Changes to Personal Data" in the "Data Protection and Privacy" chapter of the SAP BW documentation on SAP Help Portal at https://help.sap.com.

- For more information, see “Auditing Activity in SAP HANA Systems” in the *SAP HANA Security Guide* on SAP Help Portal at https://help.sap.com.

Modifying the content of the BI Platform such as Analysis workbooks and OLAP Connections is logged by the auditing capabilities of the BI platform.

For more information, see “Auditing” in the *Business Intelligence Platform Administrator Guide* on SAP Help Portal at https://help.sap.com.

7 Troubleshooting

Analysis provides utilities for troubleshooting, such as error messages, log files and traces.

7.1 Troubleshooting in Analysis

You can run Analysis in different troubleshooting modes. After the first Analysis installation, no troubleshooting mode is active.

You can specify the troubleshooting options in the Analysis backstage area: Select *File* > *Analysis* > *Troubleshoot* > *<troubleshooting mode>*.

The following troubleshooting modes are available:

- *Support Mode*
  In the Support Mode, the system stores exceptions, error messages and traces. BW Server Tracing for the Analysis plug-in is also active.
- *Profiling Mode*
  In the Profiling Mode, client profiling is active. BW Server Tracing and Workbook Profiling for the Analysis plug-in are active. The system also stores exceptions and error messages.
- *Advanced Mode*
  You can specify the options for troubleshooting in the *Advanced Support and Profiling Mode* dialog. These tabs are available in the dialog: *General* (for all plug-ins) and *Analysis* (for the Analysis plug-in).
  The options on the three tabs are described later in this chapter.

The Support Mode and the Profiling Mode can be active at the same time.

You can check the statistics under *File* > *Analysis* > *Troubleshoot* > *Show Profiling Statistics* or *Show Workbook Profiling Statistics*.

Note that writing profiling statistics may influence the performance. You can select *Deactivate* in the Troubleshoot area to deactivate all troubleshooting modes if they are no longer needed.

Advanced Mode: General Tab

Log Severity

The Log Severity defines the amount of log and trace information that is stored. In this area, you can select:

- *Support*
  By default, the system stores exceptions and error messages. If the check box *Support* is selected, the system stores exceptions, error messages and traces.
  The information is stored as .glf files under `%temp%\SAP\COF`.

The system can also store messages and traces that are defined in the log.config file under `%appdata%\SAP\COF`. For more information, contact your system administrator.

- *Profiling*
  To activate the Analysis client profiling, select the *Profiling* check box. If the setting is activated, Analysis will capture every interaction.
  You can choose between *Standard Profiling* and *Modified Profiling*.
  You can also activate the client profiling with the file system setting *clientProfiling*.
  In the *Client Profiling Statistics* dialog, the captured interactions are displayed as steps in a tree view and you can navigate to each interaction. You can see the overall processing time per step (in ms), the time the user spent in dialogs, the number of RFC calls per step and the time that was spent for RFC. In section Update UI, you can see if a navigation step has caused (unexpected) RFC calls.
  At the bottom of the *Client Profiling Statistics* dialog, you find a summary containing the time that was used on client side for processing (in ms), the number of RFC calls (count) and the time that was used for that (in ms) and the time the user spent in dialogs (in ms).

Advanced Mode: Analysis Tab

Enable BW Server Tracing

To activate the SAP BW trace tool environment, select the *Enable BW Server Tracing* check box.

You can also activate the BW server tracing with the file system setting *AbapTrace* in the `Ao_app.config` file.

The trace tool environment (transaction code **RSTT** in the connected BW system) has special tools to log and play back traces and process automatic regression tests.

For more information about the trace tool environment, see the SAP BW documentation on the SAP Help Portal.

Enable Workbook Profiling

To activate the SAP BW query runtime statistics, select the *Enable Workbook Profiling* check box.

You can also activate the workbook profiling with the file system setting *Profiling* in the `Ao_app.config` file.

Using the query runtime statistics, you can find out how much time it takes to execute certain user actions in Analysis and the BW analytic engine. The system records the performance-critical parts of the processing (statistics events). It calculates the net times by calculating the runtime of an event using the difference between the start and end times (minus the times for other events called from within the event).

For more information about the query runtime statistics, see section *Query runtime statistics* in the Analysis Administrator guide.

Enable NCO Tracing

This setting may be used for SAP error handling.

Analysis uses the .Net connector (NCO) for calling ABAP RFCs from client. NCO supports the logging of RFC traces. You can activate the tracing by selecting *Enable NCO Tracing* and choosing the desired level (usually 3).

Note that you need to restart Analysis after changing the trace level to apply the new level.

If you now work with Analysis, log files will be created in the %temp% folder of windows. There you can find a dev_nco_rfc.log file and several files "nco_rfc_XXXX_Y.trc". Additionally, there are the Analysis log files of type .glf, for example, AO_Trace_*.glf. You can zip all of them to attach them to the message.

Enable CPIC Tracing

This setting may be used for SAP error handling. Common Programming Interface - Communication (CPIC) is the communication layer under JRFC (or JCo).

You can activate the tracing by selecting *Enable CPIC Tracing* and choosing the desired level. You can choose a trace level from 1 to 3, where 3 is the highest and most detailed level of tracing.

Note that you need to restart Analysis after changing the trace level to apply the new level.

If you now work with Analysis, log files will be created in the %temp% folder of windows. There you can find a nco_cpic_XXX.trc file that you can attach to the message.

> **i** Note
>
> If you want to gather the log and trace information for a special issue, for example, to be used for SAP error handling, please follow these steps:
>
> 1. Make sure that only one Excel instance is running.
> 2. Enable NCO Level 3 and CPIC Level 3.
> 3. Close the Excel instance and make sure that no Excel instance is running (Windows Task-Manager).
> 4. Delete all files from the Analysis log directory (%temp%\SAP\COF).
> 5. Restart Analysis and reproduce the issue. The log files (*.glf, *.log, *.trc) are stored in the log directory, and you can attach them to a ticket.

Show Suppressed Messages

Select this check box if you want the suppressed messages to be shown.

Related Information

Query runtime statistics [page 157]

7.1.1 Evaluating Client Profiling Results

After running Analysis in a client profiling mode, you can access the results in the *Show Profiling Statistics* dialog under *File* > *Analysis* > *Troubleshoot*.

In the *Show Profiling Statistics* dialog, the steps are listed per step with numbering, for example *Step 4:* followed by the results of the fourth step. At the bottom of the dialog, you have the following options to copy or export the results:

- *Copy to a New Workbook*

To copy the results to a new workbook, select *Copy to a New Workbook* in the list and then click the text field *Copy to a New Workbook*. The results are copied in a new workbook started as separated MS Excel process.

- *Copy to Clipboard*
  To copy the results to clipboard, select *Copy to Clipboard* in the list and then click the text field *Copy to Clipboard*.
  The results are copied to clipboard in HTML format and can be pasted directly in an Excel sheet. Alternatively, you can paste them to Notepad, save the file as .html format and open it in a Browser, for example MS Internet Explorer.
- *Export to a File (XML)*
  To export the result to a file, select *Export to a File (XML)* in the list and then click the text field *Export to a File (XML)*.

Evaluating the results in a table

The results that are copied to a new workbook or a browser, are displayed in a table view. The table can make it easier to analyze the results. Above the table, you can find information about the Analysis version, the creation time of the profiling and latency estimations.

RFC Latency estimation is the minimum time value (duration) of an RFC call in milliseconds within the given results set. This value increases if the network connection between the Analysis and the BW system is slow or the distance is greater. This number multiplied by the number of RFC calls will roughly give the time spent only for network communication. You can use it to compare cases that have a significant difference in this number.

RFC Metadata fully cached has the value TRUE if RFC metadata for queries is cached locally. The number of RFC calls while refreshing the workbook might be reduced due to cached metadata. By default, the metadata cache is available in the local folder %appdata%\SAP AG\SAP BusinessObjects Advanced Analysis\cache folder where each *.cache file represents a BW system that has been cached (by its name).

The steps are grouped with Microsoft Excel grouping functionality according to the step levels. You can use the grouping to collapse and expand the steps to a certain level. The table consists of the following sections:

- *Level*
  All execution steps have their own hierarchy. The topmost level (0) might come from a user interaction like *Refresh All*, the subsequent steps that are triggered by the top level are listed as children and have a higher number, e.g. 1, 2, 3, 4...
- *Description*
  The description names the exact action of a step. Steps can have the same step type but each step has a different description. The step type *Rendering* can have the steps *Redisplay Workbook*, *Request Refresh Formula* and *Request result sets*, for example.
- *StepType*
  The step types of each execution step are displayed, including asynchronous or rendering tasks. You can use MS Excel data filtering to get only the steps of a particular type.
- *Step Times*
  The step times are in milliseconds.
  The time for a step is the accumulation of the timings of its children and its own execution time. You can find the following times in the table:
  - *Start Time (relative to Step Root)*

This time shows the start time of a step in relation to the step root, this is the sum of all steps from the root step to the current step.

- *Start Time (relative to Last Step)*
  This time shows the start time of a step in relation to the last step, that is the time taken for the last single step.
- *Step Time E2E*
  This time shows the time take for a step.
- *Gross Time (Step E2E-Dialog Idle Time)*
  The gross time is the actual step time as it is calculated as the difference between Step End-to-End and dialog idling times within the step. Therefore it could be used for performance analysis.
- *Client Time (GrossTime-RemoteTimes)*
  The client time is the processing time inside the Analysis client.

- *BW Remote Calls*
  For BW Remote Calls, you get information about *RFC Count*, *RFC Time (Sum)*, *RFC Bytes Sent*, *RFC Bytes Received* and *System ID*.
  RFC is an SAP protocol used for the communication between Analysis and a BW system. There different categories of RFC calls that can be observed in the profiling results. For more information, see table *RFC Step Descriptions*.
- *HANA or BOC Remote Calls*
  For HANA or BOC Remote Calls, you get information about *HTTP Count* and *HTTP Time (Sum)*.

RFC Step Descriptions

RFC Call / Step Description	Description
RFC_PING / RFCPING	This call is related to the logon to the BW system. There could be up to 3 of these 'Ping' calls.
RSAO_BICS_SESSION_INITIALIZE	This call initializes the session by checking the capabilities of the BW system and the compatibility with Analysis, e.g. is it possible to save a workbook to the BW system.
BICS_CONS_SET_GET_SESSION_PROP	This call checks the properties of the session for a data source or a set of data sources.
BICS_CONS_CREATE_DATA_AREA	This call creates a data area. The data area is the (initially) empty container where the data for all subsequent operations of/from the session is stored.
BICS_PROV_OPEN / BICS_PROV_MASS_OPEN	This call adds the data source to the data area created above.
BICS_PROV_GET_INITIAL_STATE / BICS_PROV_MASS_GET_INIT_STATE	This call gets the initial status/definition of the data source to be executed.

RFC Call / Step Description	Description
BICS_PROV_GET_VARIABLES	This call gets the information about the variables that are required to be set for data source execution.
BICS_PROV_GET_RESULT_SET	This call fetches the data from the data source to be displayed in the workbook.
RFC_FUNCTION_SEARCH	This call can be avoided if proper meta data is available in Analysis. For more information, see SAP Note 1944912

7.2 End-to-End Tracing

A single user workflow can involve multiple interactions with different servers. Each of those servers writes tracing information to its own log file. With the SAP Client plug-in, you can see all the tracing information to a particular workflow.

1. Download and install the SAP Client plug-in.
   You can find the installation file and additional information in SAP note 1435190.
2. Make sure that the Analysis Add-In is enabled.
   The LoadBehavior parameter should be set to 3.
3. Start the SAP Client plug-in.
4. Select the Micorsoft Office application you want to trace, for example Microsoft Excel.
5. Press *Launch* and proceed the steps you want to trace.

The SAP Client plug-in provides you with an XML file containing the traced information.

For more information, see the *Trace Analysis* chapter in the SAP Solution Manager documentation on the SAP Help Portal.

Related Information

To configure the load behavior of the Analysis Add-In [page 123]

7.3 To enable Analysis after system crash

Context

If a Microsoft application crashes, and you have to close the application, Analysis might be disabled by the Microsoft application. If this happens, you have to re-enable the Analysis.

Procedure

1. Open Analysis.
   After the system crash Analysis is not visible in the menu.
2. Choose *File* > *Options*.

   The *Options* appears.
3. Select *Add-Ins* in the dialog.
4. In the *Manage* box, select *Disabled Items*.
5. Press *Go...*.
6. In the *Disabled Items* dialog box, select Analysis.
7. Press *Enable*.
8. In the *Manage* box, select *COM Add-Ins*.
9. Press *Go...*.
10. In the *COM Add-Ins* dialog box, make sure that *Analysis* option is activated.
11. Press *OK*.

Results

Analysis is again available in the ribbon.

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