SAP Analytics Cloud
Hybrid Implementation
Best-Practice
Recommendations

Information Classification: Public
Document Version: 4
TARGET GROUP:
Analytics Competency Centers, Application Consultants, System Architects, Project Leads, Business Users

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1. Leading with the vision of SAP Analytics Cloud for all Analytics capabilities

Cloud customer adoption in general has grown significantly in the recent years, with more and more Platform-as-a-Service and Software-as-a-Service (SaaS) offerings on the market. **For all analytic capabilities**, SAP is leading with the vision with **SAP Analytics Cloud**. The SaaS-model increases the **speed of innovation**: SAP manages the analytics platform for you and provides frequent updates, so you can rather focus on building great analytics. You can create end-to-end scenarios by blending on-premise and cloud data, with rich collaboration capabilities built-in. With its secure data centers in the major countries, rich functionality, and consumer-grade experience spanning across BI, planning and predictive, SAP Analytics Cloud offers a new experience, which is **rich, lean and productive - a continuation of your existing information semantics, adding new interactive analytics on-top**.

The **customer base** of SAP Analytics Cloud is experiencing a dynamic growth, being quite fairly split between large enterprises and medium to small businesses. All the 25 SAP industry verticals are represented. The most Cloud Analytics savvy verticals include e.g. Retail, Consumer Products, High Tech, Mill Products & Mining and Utilities (in addition to Professional Services, representing SAP’s partners in this space). A significant (and growing) group of the customers uses SAP Analytics Cloud planning capabilities in addition to the data management and business intelligence features.

Many of those innovators, who choose SAP Analytics Cloud, are characterized by the desire to do something radically different. They are well-aware of the value of the existing data, metadata and data connectivity investments; but at the same time the **ease of connecting to the different platforms** helps them approach new analytics workflows rather top down. By using a radical, **analytics-first approach**, they truly want to excite their business, helping kick-start deeper transformational projects in the company. With the ability to articulate diverse data assets, from top-floor to shop floor, and spanning multiple business areas - the value potential is huge.

SAP Analytics Cloud strongly leverages the SAP partner/reseller ecosystem, as alluded to by its adoption in the Professional Services industry. In addition, partners build on the Line of Business and Industry business content delivered by SAP and deliver their own content templates leveraging the SAP App Center.
2. Hybrid BI capability of SAP Analytics Cloud

One of the major differentiators of SAP Analytics Cloud is its hybrid BI capability. A hybrid BI deployment is a BI and data management deployment that combines on-premise data and artefacts with cloud components to propose a BI solution that hides the complexity inherent to data gravity:

- Hybrid defined by data connectivity, with SAP Analytics Cloud connecting to on-premise data sources (see also https://www.sapanalytics.cloud/learning/data-connections/):
  - **Live connectivity** - bringing SAP Analytics Cloud to the source of the data. In SAP Analytics Cloud, you can create models from data sources of on-premise or cloud systems, build stories based on those models, and perform online analysis without any data replication. This feature allows SAP Analytics Cloud to be used in scenarios where data cannot be moved into the cloud for security or privacy reasons, or your data already exists on a different cloud system.
  - **Data Acquisition** – reducing the data mass by having SAP Analytics Cloud solely acquire the data from remote systems, which is needed for performing analytical workflows. Data is imported (copied) to SAP Analytics Cloud’s own SAP HANA in-memory database. Changes made to the data in the source system don’t affect the imported data.

- Hybrid defined by the combination of SAP Analytics Cloud and other front-end tools accessing (the same) data for potentially overlapping use cases:
  - To build and consume your BI content, you might have been using e.g. SAP Lumira Discovery (see also the SAP Lumira Discovery strategy document), SAP Lumira Designer (previously known as SAP Design Studio), SAP BusinessObjects Web Intelligence (WebI) (or Desktop Intelligence as the predecessor), the once popular SAP BusinessObjects Dashboards (formerly known as Xcelsius), SAP BusinessObjects Explorer, SAP BusinessObjects Crystal Reports, SAP Analysis for Office, or the SAP Business Explorer (BEx) family of tools - or any combination thereof – just to name a few.

The agile semantics of SAP Analytics Cloud helps you safeguard the data semantics and data security of your existing SAP analytics platform that you have invested in:

<table>
<thead>
<tr>
<th>Data semantics / Modelling / Integration</th>
<th>SAP BusinessObjects BI Platform</th>
<th>SAP Data Warehousing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The Universe</strong> semantic layer to query relational databases including SAP HANA, Oracle, DB2, Sybase, SQL Server, etc. The Universe encapsulates the mapping between the technical database complexities and the business requirements.</td>
<td><strong>The Query</strong> object is generally the access-point for downstream clients, offering native access to OLAP functionality, and exposing known BW metadata like hierarchies, variables, structures, etc. The layers underneath (incl. integration, core warehouse and potentially also data marts) encompass complex business logic and transformations. Your Enterprise Data Warehouse investment includes persistence (DataStore Object, InfoObject, InfoCube) and/or virtualization objects (CompositeProvider, Open ODS, etc.).</td>
<td></td>
</tr>
</tbody>
</table>

**Data Security**

- Authentication of users is often externalized to Microsoft Active Directory, an LDAP directory or an
- Secure data access and data integrity are ranging from user- and roles relationships and system access
SAP system, though many small to medium sized organizations use the BI Platform for this task. Authorizations, which determine application and access rights though, are managed within the BI Platform. Row-level data access rights are managed either in the database or within in BI Platform.

Tab: Data semantics and data security investment in your existing SAP analytics platform

A pragmatic approach for the purposes of your hybrid BI project is to consider the existing data semantics investment to be ‘open for extensions, but closed for modifications’ and extend it through the application mass of SAP Analytics Cloud.

The following chapter provides a decision tree how to navigate through the complexity of your hybrid BI project, depending on your existing analytics assets.

3. Best-practice recommendations for your hybrid BI project

While the following best practices are primarily centered around safeguarding the data semantics ‘treasure’ and defeating the hybrid front-end complexity, there is one more flavor to it when you land and expand SAP Analytics Cloud: ‘rethink’.

The innovators, who already have been there and done that, tell us that the key success factor for the BI cloud transformation is to get to the bottom of what your business really wants and needs first. All front-end and visualization tools have a learning curve. Because user interfaces typically share little between old and new, it’s prudent to abandon the ‘we-have-been-doing-this-for-decades-so-it-must-be-right’ routine. Here a couple of examples:

- Substitute information broadcasting by personalization, self-service / exploration, and listing and promoting your enterprise analytics assets
- Enable story-telling and simulation instead of pre-moderated, pre-formatted static excerpts
- Enrich BI by predictive and planning as it is now one tool, etc.

You’ll be surprised by the resulting innovation opportunities and efficiency gains.

Let’s have a closer look at the different constellations you might be facing in terms of your existing analytics investment and the respective recommendations:

3.1. SAP BusinessObjects BI Platform 4.2

3.1.1. BI Platform server

Decide on your connection strategy: Live or Acquired data?

SAP Analytics Cloud can consume a Universe in both ‘import data’ workflow, as well as ‘live online’ connection. SAP Analytics Cloud builds on the flexibility of the BusinessObjects BI Universe, by offering a live connection effectively directly on top of relational database, without the need to pass through a query panel beforehand. This enables new use-cases that were difficult to implement before, such as the requirement to drill anywhere into your data, from any starting position. The other option is the data acquisition mode. Based on your decision for the respective connectivity mode, there are special prerequisites and configuration steps (see below).
<table>
<thead>
<tr>
<th>Upgrade your BI environment to meet minimum supported requirement depending on your connection type</th>
<th>For more details on the two approaches, refer to the SAP Analytics Cloud Connectivity Guidelines.</th>
</tr>
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<tbody>
<tr>
<td>It is not uncommon for parts of your on-premise installations needing some level of update to be supported by SAP Analytics Cloud. For this, due diligence is required when consulting the System Requirements and Technical Prerequisites, to ensure that the relevant Support Packages, Patches and Corrections are in place to make it happen. By ensuring that your enterprise source systems and databases are up to date and fall within our support criteria, you’ll be safeguarding a high-level of reuse for your existing system objects, so that known application semantics can be consumed again into SAP Analytics Cloud without the need for radical rework.</td>
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</table>

| For data acquisition mode, install Cloud Connector inside your corporate domain behind firewall and deploy Cloud Agent to Tomcat web app server (import data workflow) | Install and configure the Cloud Connector (i.e. a secure tunnel) and Cloud Agent (a web app deployment) within your on-premise estate, to establish a trusted acquisition connection to your Cloud tenant. Only after provisioning this on-premise server could imports be scheduled to the cloud, helping automate data updates the underlying cloud models, be that from a file-server or an enterprise source such as SAP BusinessObjects BI 4.x or SAP BW 7.x. – see below). Initially, these extra on-premise appliances are often seen as undesirable additional investments and points of maintenance, but the effort required to stand-up these components is quickly offset the ability to then automate what was previous manually maintained. These setup and configuration activities are typically SAP Basis Administration and IT Infrastructure tasks, potentially in-tandem with your hosting partner (in the case of outsourced systems that need to be reached). For more detail, refer to the Connectivity section of this document. |

| For live connectivity, configure Reverse Proxy on Apache web server (live data, indirect access) and deploy the InA consumer agent to Tomcat web app (for live data access to universes) | For more detail, refer to the Connectivity section of this document. |

<p>| Connect to BI4.2 from Analytics Cloud | For more detail, refer to the respective Help document. |</p>
<table>
<thead>
<tr>
<th><strong>Maintain database information including system credentials in the new target environment.</strong></th>
<th>As connection definitions cannot be exported or reused, your IT will need to maintain database information including system credentials in the new target environment.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Monitor and optimize your BI Platform according to load and process flows</strong></td>
<td>For more detail, refer to the following document. Consider the noteworthy process-flows that include the Web Application Container Service, the Web Intelligence Processing Server, and the DSL Bridge Service.</td>
</tr>
</tbody>
</table>
| **3.1.2. Universes (semantic layer)** | **Convert .UNV to .UNX format** Most investments in .UNX format Universes are re-usable and consumable in SAP Analytics Cloud.  
**Browse the available BI Universes from Analytics Cloud** With the SAP Analytics Cloud Live Universe Connection, an end-user simply accesses the data to then browse and visualize it. They can drill up/down and explore the objects in which ever paths are supported by the universe. There are less volume limitations or document boundaries than you might expect from previously using a query panel with complex filters. Therefore, the performance of the underlying database and optimization of the universe becomes the critical factor to this type of interaction. For organizations that have adopted a high-performace database, this type of connectivity will fully exploit its capabilities.  
**Optimize your BI Universe structure for downstream consumption by Analytics Cloud** General best-practices for Universes development and Semantic Layer fine-tuning for consumption by Web Intelligence can be found online in several places:  
Specifically for this kind hybrid BI deployment, please take a look at the latest [best practices for consuming Universes out of SAP Analytics Cloud](https://www.sap.com). |
| **3.1.3. BOE Users & Groups (security model)** | **Maintain database logon information including system credentials in the new target environment.** Your existing BOE User/Group definitions cannot be directly exported or replicated into Analytics Cloud (for future roadmap considerations in this regard, refer to the [SAP Analytics Cloud and SAP Digital Boardroom product roadmap](https://www.sap.com) and [SAP Analytics Cloud Product Plan](https://www.sap.com)).  
However, the re-use of data level access rights, that are managed in both the database and inside the BI Platform is possible for both acquired and live connections. This means all the investment in creating and maintaining those access rights are not lost. SAP Analytics Cloud connects to and utilizes the BI Platform on-premise to access the Universe and the data. When the SAP Analytics Cloud connects, it performs a logon, and the authorizations are determined.  
For of best practices associated with security and access rights, refer to the [Security](https://www.sap.com) section. For example, acquiring data into SAP Analytics Cloud via a BI Universe means once that data has been imported into a model, the ‘row level’ data security is no longer propagated to the users that consume that model (that logic would have to be redefined again in Analytics Cloud). As such, many... |
customers prefer Live connections since it natively inherits and re-uses the ‘row level’ data security at run-time.

| Maintain BIP to use the same IdP as Analytics Cloud to issue SAML certificate. for end-to-end SSO | Although the user authorization for SAP Analytics Cloud and the BI Platform are separate, the user authentication can be shared with the use of a SAML 2.0 identify management system. This means a seamless single-sign-on can be achieved between SAP Analytics Cloud and the BI Platform. With SAP BusinessObjects BI Platform 4.2 Support Pack 5, this SAML configuration becomes much easier, but it is still very much possible with earlier versions. For more details, refer to the Security section. |

### 3.1.4. Web Intelligence or Crystal reports

| Leave traditional reporting as-it-is on-premise. | Converting or migrating visualizations from any of the on-premise content is technically challenging, because the underlying engines are different. Not just from the actual visualization aspect, but also from the formula or variables language that drives them. So, SAP has decided not to migrate them, at least not in a ‘push-the-button’ fashion. The extra re-work required to ‘fix’ visualization migration issues would be akin to building them from scratch, given the changes in the user design experience between the two. |

SAP Analytics Cloud is most suited to visualizations as it has a great number of standard chart types, including tables that can show breaks and sub-totals. This is where you can move fast, enabling new reports and/or gradually replacing existing ones. When the specific, full power of Web Intelligence is needed, you can still use the equivalent content in Web Intelligence. Additionally, the traditional strengths of reporting - including personalization, broadcasting, offline use and external recipients - are still of a good use.

There is currently no direct integration with SAP Analytics Cloud at the level of the Web Intelligence artefacts, but the value and investment in objects such as query results and report blocks make them potential candidates for inclusion in our future integration roadmap.

| Consolidate and/or replicate some tabular use-cases into SAP Analytics Cloud | Your business users may already be using a Fiori Launchpad to access business-suite transactions and embedded reports. They may also be using the BI Launchpad to access SAP BusinessObjects BI reports. If your organization uses other analytical tools, there may also be other content portals involved as well. As such, it soon becomes difficult for business users to find diverse reports in a single place. Furthermore, with the onset of new cloud-based content from SAP Analytics Cloud, this gap widens even more, so SAP recommends using SAP Analytics Hub to: |

- Provide your users with a single portal containing analytics artefacts from all around your organization, whether in SAP Analytics Cloud, in SAP BusinessObjects BI Platform or any other portal or external web application that is accessible via a URL. It means your users can have just one starting point - regardless of where the content is held - and this is likely to be key to any successful SAP Analytics Cloud project that has traditionally used the SAP BusinessObjects BI Platform |
- Link it to your Fiori Launchpad. This will help foster the re-use of assets as by enabling users to search for all analytics in one place. |

When you have many assets, it also becomes difficult to maintain the lists and educate users about the list of roles and authorizations required to access said...
assets. With SAP Analytics Hub, these can be documented and an end-user will get the most up-to-date information right away.

### 3.1.5. Lumira Discovery visualizations

| Rebuild use-cases (self-service/agile-visualization) in Analytics Cloud | Your business users might also have developed self-service stories and data discovery visualizations with SAP Lumira Discovery.  
As there is no direct migration / conversion path for this type of content, you might consider rebuilding some of your self-service visualizations in SAP Analytics Cloud, as the primary solution for data discovery from SAP going forward. This allows the business users to bring either own data, enable agile data preparation, and blend it with corporate data. SAP Analytics Cloud also enables stories and data-discovery scenarios to be built and consumed by the business. Compared with the on-premise equivalent of SAP Lumira Discovery, SAP Analytics Cloud provides unique insight capabilities particularly when overlaid with predictive and planning features.  
For more details, see also the [SAP Lumira Discovery](#) strategy document. |
<table>
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### 3.1.6. Lumira Designer / Design Studio applications / Xcelsius dashboards

| Rebuild (simple application) use-case in SAP Analytics Cloud | You might have seen or built a huge range of dashboards and analytical applications, from the simple to the very complex. Our on-premise tools, such as SAP Lumira Designer, can create content that shows many components that interact with one another, however they can also create true applications using highly sophisticated controls and ‘scripting’ behind buttons, or triggered by events. These controls can determine how other parts of the application behave in a very specific way.  
As there is no direct migration / conversion path for this type of content, you might consider rebuilding some of your analytical applications in SAP Analytics Cloud. Compared to the possibilities of scripted Designer applications, it is rather the dashboard-style analytical applications that can be implemented with SAP Analytics Cloud today. These will be interactive and customizable. For example, the following uses are all possible:  
- ‘Content linking’ such as using filtering and input controls to have a cascading effect  
- Entering values into a ‘value driver tree’ and running a simulation to see its impact  
- Predicting future values, or gaining insight from predictive services  
- Jumping to an external application passing context filters  
- Or filtering on a part of a geo-map using a ‘point of interest layer’  
With the SAP Digital Boardroom, even more is possible. A ‘dashboard of dashboards’ can be built, enabling the user to jump from one part to another, and seamlessly move between reporting, predictive and planning as part of a cohesive overall story. Deeper data exploration controls are also possible, allowing to tune how each component should behave. |
For analytical applications with highly sophisticated controls and ‘scripting’, SAP Lumira Designer is still the tool of choice: see also [SAP Lumira strategy document](#).

For future roadmap considerations in this regard, refer to the [SAP Analytics Cloud and SAP Digital Boardroom product roadmap](#) and [SAP Analytics Cloud Product Plan](#) (keyword ‘Application Design’).

### Integrate assets into SAP Analytics Hub

Using SAP Analytics Hub, provide your users with a single portal containing analytics artefacts from all around your organization, whether in SAP Analytics Cloud, in SAP BusinessObjects BI Platform or any other portal or external web application that is accessible via a URL.

#### 3.1.7. Explorer Infospaces

**Rebuild (self-service/agile-visualization) use-cases in SAP Analytics Cloud**

Exploration is an ad-hoc capability without any significant configuration investment needed. SAP Analytics Cloud fulfils this requirement ‘out-of-the-box’ and provides identical or even superior exploration capabilities, compared with its on-premise counterparts in this space, such as SAP BusinessObjects Explorer and SAP Lumira Discovery. In addition to what SAP BusinessObjects Explorer supports today, SAP Analytics Cloud offers lots of other data connectivity options including (e.g. SAP S/4HANA, SAP BW/4HANA and various Cloud sources). Additionally, the ‘live’ universe connectivity provides a unique opportunity to truly start anywhere and explore the entire database without the need to predefine a query. Unlike the SAP BusinessObjects Explorer Infospaces, which need to be scheduled individually, leveraging SAP Analytics Cloud model updates, all the stories based on the model will reflect the latest data. Security in SAP Analytics Cloud can be applied on the Model level and hence is respected in all the stories, eliminating the need of personalization on individual Infospaces and speed up the deprecation of Adobe Flash).

The proven method to move from SAP BusinessObjects Explorer to SAP Analytics Cloud includes the following steps:
- If Universes are your data source for exploration, convert your UNVs to UNX to get started with SAP Analytics Cloud
- Use the Auditing Database and Universe to quickly find the most frequently used reports
- Identify the users, who use the reports frequently
- Replicate SAP BusinessObjects Explorer Infospaces in SAP Analytics Cloud
- Collect feedback to help increase adoption SAP Analytics Cloud

### Integrate assets into SAP Analytics Hub

Using SAP Analytics Hub, provide your users with a single portal containing analytics artefacts from all around your organization, whether in SAP Analytics Cloud, in SAP BusinessObjects BI Platform or any other portal or external web application that is accessible via a URL.

#### 3.1.8. Analysis for Office workbooks

**Use SAP Analysis for Office connecting in a hybrid mode to SAP Analytics Cloud models**

The on-premise client SAP Analysis for Microsoft Office, with its Excel Add-In, can already connect to SAP Analytics Cloud to consume acquired data models. This is a good example of a cloud back-end working with an on-premise thick-client, in a hybrid manner. You’ll need to ascertain the demands for deploying SAP Analysis for Microsoft Office (when native Microsoft Office integration is required) alongside SAP Analytics Cloud (with its web-based table interface). The table interface of SAP Analytics Cloud allows you to drill and filter through a web browser in a very similar way to an MS Office worksheet, but without any local client installation.
<table>
<thead>
<tr>
<th><strong>Integrate assets into SAP Analytics Hub</strong></th>
<th><strong>Using SAP Analytics Hub, provide your users with a single portal containing analytics artefacts from all around your organization, whether in SAP Analytics Cloud, in SAP BusinessObjects BI Platform or any other portal or external web application that is accessible via a URL.</strong></th>
</tr>
</thead>
</table>
| **3.1.9. Broadcasting schedules** | **In general, SAP recommends using SAP BusinessObjects Crystal Reports for all kinds of report distribution, broadcasting and printing scenarios.**  
Therefore, a paradigm shift is needed here. Projects have shown that smart use of SAP Analytics Hub’s portal functionality - when linked to the personalized on-demand capabilities of SAP Analytics Cloud – can, to a large extent, replace previous information-broadcasting requirements. For example: there could be a great asset which could be relevant for a user, but how do you go about promote it without bombarding mailboxes with lots of emails? Instead of pushing the information to the end-users centrally with a regular frequency, the consumers rather quickly learn – and enjoy – the new freedom of their new, role-based and easily searchable analytics ‘catalogue’ and the self-service capabilities whenever needed. As described above, SAP Analytics Hub as a native SaaS solution helps you list all your SAP or non-SAP enterprise analytics assets in one place, tracks asset usage, enable promotion of specific assets and personalize users’ favorites. Administrators have the possibility to repaint report URLs for all users. SAP Analytics Hub supports SAML 2.0 for an easy single-sign-on (SSO) setup. |

<table>
<thead>
<tr>
<th><strong>3.2. SAP Business Warehouse and BW/4HANA</strong></th>
<th><strong>3.2.1. SAP Business Warehouse platform</strong></th>
</tr>
</thead>
</table>
| **Check prerequisites for supported BW and BW/4HANA versions and upgrade to the minimum supported requirements** | **Consult the System Requirements and Technical Prerequisites to ensure that the relevant Support Packages, Patches and Corrections are in place to make it happen.**  
By ensuring that your systems and databases are up to date and fall within our support criteria, you’ll be safeguarding a high-level of reuse for your existing system objects, so that known application semantics can be consumed again into SAP Analytics Cloud without the need for radical rework. |
| **Check supported features and limitations** | **In some cases, concessions will need to be made for the minor redesign of source queries, the extent of which can be determined by reviewing the respective support matrix:**  
  - [SAP Analytics Cloud Support Matrix for Live Connectivity to SAP NetWeaver BW](#)  
  - [SAP Analytics Cloud Support Matrix for Importing Data from SAP NetWeaver BW](#) |
| **Decide on Live vs. Import connectivity type** | **Become familiar with the pros and cons of each approach, and learn to combine the two approaches to complement each other:**  
  - For example: whilst Live data is always current, obtaining the latest information will incur some latency (i.e. whilst the query does its round-trip to fetch the results).  
  - Conversely, whilst replicated data is accelerated locally - giving good response times - that data is only as current as the last upload to the model.** |
If Import data, Install and configure SAP Cloud Connector, SAP Analytics Cloud Agent and SAP Java Connector (JCO)

There are further distinctions that need to be made in terms of functional capabilities in the product, such as Planning and Predictive can’t be done on Live data; or Dimension-linking and Geo-features aren’t supported for Online connections (HANA being the exception), but these known limitations are all well documented in the online Help and will be discussed in detail later.

Check also the SAP Analytics Cloud Connectivity Guidelines.

Ensure that the SAP the Analytics Cloud Agent is kept up-to-date, or at least compatible with the next Wave update.

SAP provides this information ahead of the next wave update, allowing organizations to plan accordingly. Compare the wave update schedule with internal deadlines (such as month-end close) to avoid negative business impact due to data acquisition failures because of an out-of-date Cloud Agent.

3.2.2. BW authorizations (security model)

Using SAP Analytics Cloud Live connectivity, data access control is delegated to the underlying BW Authorizations during run-time

All the analysis authorizations from SAP BW can be re-used when using the Live connectivity of SAP Analytics Cloud. With the Live connection, the data stays in your back-end and your data authorizations from SAP BW are being checked at runtime against the entitlement system. For example, data access managed by authorizations on InfoCube Level, Characteristic Level, Characteristic Value Level, Key Figure Level, Hierarchy Node Level etc. will be kept and applied accordingly. There is no need to re-define data permissions locally in SAP Analytics Cloud as the authorizations are natively inherited.

Configure Single Sign-On (SSO) to a custom identity provider, using the SAML 2.0 protocol

SAP Analytics Cloud provides Authentication SAML 2.0 capabilities to enable Single-Sign-on simplifying authentication to SAP Analytics Cloud.

For more details, refer to the Security section.

If Import, define data access controls within SAP Analytics Cloud

When using Import data connections, data from SAP BW is replicated into SAP Analytics Cloud and all data and model are then stored in SAP Analytics Cloud in-memory HANA Database. Security within SAP Analytics Cloud will then need to be added to the model within SAP Analytics Cloud to restrict Column and Row-level permissions.

For more details, refer to the Security and Connectivity sections of this document.

3.2.3. Queries (data semantics)

Re-use your existing Queries

To define Queries on top of InfoProviders, SAP BW BEx Query Designer can still be used with SAP BW 7.4 or 7.5, but is not supported with SAP BW/4HANA. In SAP BW/4HANA, all queries are created and maintained using the BW Modelling Tool (BWMT). All queries either defined with BEx Query Designer or BWMT are the main access-point and can be consumed by SAP Analytics Cloud to leverage full BW functionalities.

SAP Analytics Cloud takes advantage of the data in SAP BW that is already modeled into the BEx Query, so there is minimum modeling effort needed in
SAP Analytics Cloud.

Fig. Example: Reuse your SAP BW and SAP BW/4HANA data semantics for a hybrid BI project

You might be familiar with the general best-practices for designing BW Queries, incl. e.g.: [https://wiki.scn.sap.com/wiki/display/BI/Query+Performance+and+Memory+Consumption](https://wiki.scn.sap.com/wiki/display/BI/Query+Performance+and+Memory+Consumption), and [https://launchpad.support.sap.com/#/notes/1681396](https://launchpad.support.sap.com/#/notes/1681396) (log-on required)

<table>
<thead>
<tr>
<th>Decide on Live or Import connectivity type</th>
<th>As discussed above, in some cases, concessions will need to be made for the minor redesign of source queries, the extent of which can be determined by reviewing the respective support matrix:</th>
</tr>
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|                                          | • SAP Analytics Cloud Support Matrix for Live Connectivity to SAP NetWeaver BW  
|                                          | • SAP Analytics Cloud Support Matrix for Importing Data from SAP NetWeaver BW  
|                                          | Refer also to the [best practices for building BW queries for the Live connection to SAP Analytics Cloud](https://wiki.scn.sap.com/wiki/display/BI/Query+Performance+and+Memory+Consumption), Check also the [Supported Features and Known Limitations to SAP BW Live Data Connections](https://launchpad.support.sap.com/#/notes/1681396) for full documentation of BEx query support.  
|                                          | More details are provided in the [Connectivity](https://wiki.scn.sap.com/wiki/display/BI/Query+Performance+and+Memory+Consumption) section of this document. |

### 3.2.4. BEx Analyzer Reports and Bex Web Application Designer applications

Convert Bex workbooks to SAP Analysis for Microsoft Office (without or with SAP BusinessObjects BI Platform) or rebuild use-cases in SAP Analytics Cloud

If you are on SAP BW on any database and SAP BW on HANA, you have continued support for SAP BEx 7.x. within its maintenance timeframe. However, moving beyond SAP BEx enables you to benefit from the new Converting your BEx workbooks to SAP Analysis for Microsoft Office (without or with SAP BusinessObjects BI-Platform) is the obvious option. Once you have this in place, you can then also use [SAP Analysis for Microsoft Office to connect to SAP Analytics Cloud](https://wiki.scn.sap.com/wiki/display/BI/Query+Performance+and+Memory+Consumption) to consume acquired data models. If the Microsoft Office paradigm is not required, you can rebuild your use-cases in SAP Analytics Cloud on top of your SAP BW queries directly, leveraging the self-service capabilities.

If you’re moving from SAP BW to SAP BW/4HANA, you should already be looking transition your traditional SAP BEx reports and applications to the

| If you’re moving from SAP BW to SAP BW/4HANA, you should already be looking transition your traditional SAP BEx reports and applications to the |  
|---------------------------------------------------------------|---|
latest SAP Analytics offering incl. SAP Analytics Cloud, as the BEx reports and applications are no longer supported in this constellation (To ease the conversion project to BW/4HANA, SAP is offering a dedicated pilot program to support the temporary use of existing SAP BEx Web Applications. The pilot program is planned for SAP BW/4HANA 1.0 SP 6 or higher and exclusively available with the In-Place Conversion to SAP BW/4HANA (Support for a limited time until end of 2019). For more details please check SAP Note 2496706.)

Rebuild BEx Web Application Designer applications in SAP Analytics Cloud

In addition to rebuilding your BEx Web Application Designer applications and dashboards in SAP Lumira Designer (requires SAP BusinessObjects BI-Platform), you might consider implementing some of the use-cases (e.g. simple dashboards) in SAP Analytics Cloud.

Integrate assets into SAP Analytics Hub

Using SAP Analytics Hub, provide your users with a single portal containing analytics artefacts from all around your organization, whether in SAP Analytics Cloud, in SAP BusinessObjects BI Platform or any other portal or external web application that is accessible via a URL.

### 3.2.5. SAP Lumira Designer / Design Studio applications (requires SAP BusinessObjects BI-Platform - see also the SAP BusinessObjects BI Platform section above)

Rebuild (simple application) use-case in SAP Analytics Cloud

For analytical applications with highly sophisticated controls and ‘scripting’, SAP Lumira Designer is still the tool of choice for on-premise deployments (see also SAP Lumira Strategy Document), since these can deliver similar functionality as BEx 7.x Web Application Designer since the majority of the most-used WAD capabilities are available in SAP Lumira 2.x.

For future roadmap considerations in this regard, refer to the SAP Analytics Cloud and SAP Digital Boardroom product roadmap and SAP Analytics Cloud Product Plan (keyword ‘Application Design’).

See also 3.1.6.

Integrate assets into SAP Analytics Hub

Using SAP Analytics Hub, provide your users with a single portal containing analytics artefacts from all around your organization, whether in SAP Analytics Cloud, in SAP BusinessObjects BI Platform or any other portal or external web application that is accessible via a URL.

### 3.2.6. SAP Lumira Discovery stories (requires SAP BusinessObjects BI-Platform - see also the SAP BusinessObjects BI-Platform section above)

Rebuild (self-service/agile-visualization) use-cases in SAP Analytics Cloud

See 3.1.5.

Integrate assets into SAP Analytics Hub

Using SAP Analytics Hub, provide your users with a single portal containing analytics artefacts from all around your organization, whether in SAP Analytics Cloud, in SAP BusinessObjects BI Platform or any other portal or external web application that is accessible via a URL.

### 3.2.7. SAP Analysis for Microsoft Office workbooks

Use SAP Analysis for Microsoft Office to connect to SAP Analytics Cloud to

With SAP Analysis for Microsoft Office, you can connect to SAP Analytics Cloud to consume acquired data models in SAP Analytics Cloud. You might also want to consider SAP Analytics Cloud with its web-based table interface as an option to the native Office environment if suitable. For native Office integration, as of today, SAP recommends using SAP Analysis for Microsoft Office.
| consume acquired data models | Office, if you would like to continue with on premise BI clients, which have similar functionality as BEx 7.x Analyzer. Most used capabilities of BEx Analyzer are available in SAP Analysis for Microsoft Office 2.x. For SAP BEx Analyzer semi-automated transition of SAP BEx Analyzer Workbooks to SAP Analysis for Microsoft Office is available as a service offering. For more details, see the following blog. |
| Integrate assets into SAP Analytics Hub | Using SAP Analytics Hub, provide your users with a single portal containing analytics artefacts from all around your organization, whether in SAP Analytics Cloud, in SAP BusinessObjects BI Platform or any other portal or external web application that is accessible via a URL. |

### 3.2.8. Information broadcasting

**Paradigm shift needed: leverage Live online data with runtime authorization checks and role-based access to analytical artifacts**

These capabilities are not yet available within SAP Analytics Cloud. However, personalization remains a possibility for users that wish to view data on-demand. As described above, the combination of SAP Analytics Hub and SAP Analytics Cloud might help you transform from the central broadcasting to personalized, on-demand analytical workflows.

In general, SAP recommends using SAP Crystal Reports for all kinds of report distribution, broadcasting and printing scenarios. If there is a requirement to broadcast Microsoft Excel-based content, SAP Analysis for Office is a viable alternative to BEx Analyzer. Broadcasting scenarios formerly done with BEx Web templates can be handled with SAP Lumira Designer 2.x.

### 3.3. SAP HANA

| Check prerequisites for supported HANA versions and upgrade to the minimum supported requirements | Consult the System Requirements and Technical Prerequisites |
| Check supported features and limitations | For more information, refer to this SAP Analytics Cloud HANA Live Connection Best Practices document and the Limitations document. |
| Decide on Live vs. Acquisition connectivity type | If Live, choose Direct (CORS) connectivity. Consult the following documents: Connectivity Guidelines, Live Data Connections to SAP HANA and Guided Playlist. If Acquisition, expose HANA Views as Web Services and import to SAC via OData connectivity. For more details, refer also to the Guided Playlist. |
| Implement SSO | For more details on Connectivity and SSO setup for SAP HANA, refer to the Connectivity and Security sections. When connecting a SAP HANA database which is included in SAP Cloud Platform (SCP) with SAP Analytics Cloud and using SSO, refer to the following blog. |
| Optimize HANA modelling for SAC consumption | For more information on SAC-related HANA modeling techniques, best-practices and Lessons-learned, refer to this SAP Analytics Cloud HANA Live Connection Best Practices document. |
### 3.4. SAP S/4 HANA

| Check prerequisites for supported S/4 HANA versions and upgrade to the minimum supported requirements | Consult the [System Requirements and Technical Prerequisites](#). Please also search the Support Knowledge Base to find useful Notes such as:
|                                                                                   | • Access CDS View from S/4 Hana Cloud in SAP Analytics Cloud (SAC)
|                                                                                   | • SAP Analytics Cloud Live connectivity with S/4HANA on-premise edition |
| Check supported features and limitations                                          | For more information, refer to the respective [Features and Limitations](#) document, the respective [Help](#) document and the [Guided Playlist](#). |
| Decide on Live vs. Acquisition connectivity type                                  | If Live, choose Direct (CORS) connectivity. Consult the [Connectivity Guidelines](#) and the [Help](#) document. |
|                                                                                   | If on SAP S/4HANA Cloud Edition, configure [cloud connectivity](#). |
|                                                                                   | If Acquisition, import to SAC via the [SAP BW Data Import](#) option and Note [Import Data from SAP S/4HANA to SAP Analytics Cloud](#). |
| Implement SSO                                                                      | For more details, refer to the [Security](#) section. |
| Check available LoB business content for Analytics Cloud to accelerate your content creation | Refer to the [SAP Analytics Cloud content](#) blog and the respective [section](#) of this document. |

### 4. Related Topics

#### 4.1. Data connectivity in detail

As previously discussed, SAP Analytics Cloud is a public, cloud-based SaaS application, capable of accessing different SAP and non-SAP on-premise and cloud data-sources, including single-sign-on (SSO) support. SAP Analytics Cloud provides two types of connectivity options, either to upload the data to the cloud via an [Import Data Connection](#) option; or using a direct online connection to the data sources, without replicating any data to cloud (even for caching) via a [Live Data Connection](#) option.
Fig. SAP Analytics Cloud data connection options

For more information on SAP Analytics Cloud Connections, refer to this Help document. For the latest information on supported connection types, data sources and how-to guides, refer to this SAP Analytics Cloud Website.

Based on your functional use case (planning or BI), the supported data sources and data volume limits, you can choose your relevant type of connection. For more information on this, check the System Requirements and Technical Prerequisites Help document.

SAP Analytics Cloud Live Data Connection

This connection type is a key value-proposition for a product running in the public cloud, where customers might be concerned about data privacy, as the data never leaves the customer’s network.

Only metadata information is stored in SAP Analytics Cloud and this information is pushed to your web browser running in your network. The transactional data, based on the query, is directly fetched from the underlying data sources to your browser - without any replication to the Cloud.

You can create Live Data connections using a 'Direct' connection type (a.k.a. using CORS – Cross-Origin Resource Sharing):

- Direct Connectivity is the simpler approach as it doesn’t require any additional hardware, is easy to setup and provides better performance.

All communication between the browser and SAP Analytics Cloud is always encrypted. The on-premise communications from your reverse proxy to back-end data sources should also be encrypted using TLS.

SAP Analytics Cloud uses the InA (SAP Information Access) Service, which is a REST http-based protocol for real-time querying. This component is available in all SAP Supported Data sources for Live connections.

With a Live Connection, the underlying Data source privileges are checked for every request at runtime, and it is possible to setup end-to-end SSO with SAML 2 Authentication for both SAP
Analytics Cloud and the on-premise data sources. This requires security expertise to handle the configuration tasks around SAML 2, Identity Provider, SSL Certificate, etc.

For more information on Live Data connectivity, configuration details, best practices and other related reading materials, please refer to this SAP Analytics Cloud Connectivity Guidelines Wiki. For standard documentation, refer to the Live Data Connection Help Document.

Please also search the Support Knowledge Base to find useful Notes such as: Note 2589761 - Connecting to Live Data in SAP Analytics Cloud *** Master KBA ***

**Supported Data Sources for Live Data Connection:**

For information on latest supported Data sources, please check the official SAP Analytics Cloud Roadmap Document.

- **SAP HANA:**
  - This is the most mature Live Connection that we support, Direct Connection type to on-premise HANA systems. Please consult the Prerequisites pages to check the supported versions of HANA. Both SSO or User Name and Password Authentication types are supported
  - There is a separate Live Connection setup process when connecting to SAP Cloud Platform. Please refer to this step-by-step playlist
  - Optimizations may need to be made in HANA modeling to improve performance. There are also number of feature limitations to consider when consuming complex HANA views. It is therefore recommended to check this Limitations Document
  - For more information on SAC-related HANA modeling techniques, best-practices and Lessons-learned, please refer to this SAP Analytics Cloud HANA Live Connection Best Practices document.
  - Configuring Live Connection to SAP HANA in HEC (HANA Enterprise Cloud) requires some additional information, please refer to this SAP Analytics Cloud to HEC Use-Case Blog
  - For standard product documentation, please refer to the section Live Data Connection to SAP HANA Help Document

- **SAP BW:**
  - SAP Analytics Cloud can connect to SAP BW running on any Database, including SAP BW running on SAP HANA and SAP BW/4HANA deployments, and supports Direct connection type. Please consult the Prerequisites pages to check the supported versions of SAP BW. Both SSO or User Name and Password Authentication types are supported
  - Access to SAP BW InfoProviders is possible via a default query. The default query is exposed in the Object Services of SAP BW
  - Optimizations may need to be made in SAP BW query design for better performance. There are also number of feature limitations to consider when consuming complex BW Queries, therefore it is recommended to check this Supported Features and Limitations Document
  - For more information on SAC-related BW Query design, best-practices and Lessons-learned, please refer to this SAP Analytics Cloud BW Live Consumption Best Practices document
  - For standard product documentation, please refer to the section Live Data Connection to SAP BW Help Document
**SAP Universes:**
- At time of writing, Live Connection to SAP BusinessObjects Business Intelligence (BI) Universe is the latest supported data source, and is available for Direct Connection type. Please consult the Prerequisites pages to check the compatible versions of SAP BusinessObjects BI systems.
- The “SAP BOE Live Data Connect” component needs to be installed to expose BIP Universes to the “InA” protocol consumers. For more information on this installation process, refer to the following Help Document.
- For SAP Analytics Cloud Universe Feature support, please refer to this Help Document. There are some feature limitations to consider when consuming complex BI Queries, therefore it is recommended to check this Limitations Document.
- For more information on SAC-related BI query design, best practices and lessons learned, please refer to this SAP Analytics Cloud Universe Live Consumption Best-Practices Wiki.
- For a detailed step-by-step procedure for SAP Analytics Cloud Universe Live Connection Installation & Configuration, please refer to this document.
- For standard documentation, please refer to the Live Data connection to SAP BusinessObjects Universes Help Document.

**SAP S/4HANA:**
- The solution supports live connections to On-premise S/4HANA, accessing the underlying ABAP CDS views/queries and can use either a Direct Connection type, including the ability to leverage SSO.
- With respect to SAP S/4HANA Cloud Edition, a separate cloud connection using OAuth and SSO security types are available.
- Please consult the Prerequisites pages to check the latest supported S/4HANA versions. For more information on Supported Features and Known Limitations to SAP S/4HANA Live Data Connections, please refer to this Document. For standard documentation, refer to the Live Data Connection to SAP S/4HANA Help Document.

SAP Analytics Cloud Import Data Connection
This is the standard data connection to import (copy) data to SAP Analytics Cloud. Connections are created in SAP Analytics Cloud to external systems to allow data acquisition, also with the possibility for regular scheduling. Data can be imported from a local file system without any additional setup.

An Import Data connection is best when data preparation is needed using data wrangling functionality, for advanced data blending scenarios, and for leveraging the full SAP Analytics Cloud product capabilities - including Planning and Predictive.

When using Import Data connection there is the option to apply data security concepts locally in SAP Analytics Cloud, for additional authorizations on the uploaded data.

To setup trusted connections to enterprise on-premise data sources, you’ll require additional components like SAP Cloud Platform Cloud Connector and SAP Analytics Cloud Agent.

The SAP Cloud Connector creates an outbound dedicated SSL tunnel between your domain and SAP Analytics Cloud, to allow external access from the Cloud to your internal systems.
SAP Analytics Cloud Agent is an on-premise data connectivity component, used to import and schedule data from SAP enterprise data sources. For more details please refer to this Help Document.

It is recommended to install both the SAP Cloud Connector and the SAP Analytics Cloud Agent on the same server resource, along with the SAP Java Connector (JCO) (as required for specific connectivity).

To access Cloud data sources, you can set-up connections directly in SAP Analytics Cloud without needing this additional setup (SAP Cloud Connector and SAP Analytics Cloud Agent).

Several of the Import Data connections also support data-connection sharing to allow other users to reuse them (and create models based on their own authentication), otherwise connections are setup per-user.

For more information on Import Data connectivity, details regarding the installation and configuration of connectivity component, implementation best-practices and recommended reading materials, please refer to this SAP Analytics Cloud Connectivity Guidelines Wiki.

For standard product documentation, please refer to the Import Data connection Help Document

Supported Data Sources for Import Data Connection:

For the full list of supported data sources and its versions and data load limitation, please refer to the Import Data Connectivity System Requirements and Technical Prerequisites.

For more information on latest supported data sources, please check the official SAP Analytics Cloud Roadmap Document.

Please also search the Support Knowledge Base to find useful Notes such as: Note 2358097 SAP Analytics Cloud connecting to on-premise data *** Master KBA ***

- **SAP BW:**
  - SAP Analytics Cloud supports data import from SAP Business Warehouse (BW) System and SAP BW/4HANA System. Check the Prerequisites section for latest supported version
  - To setup a connection to SAP BW, this requires the installation and configuration of the SAP Cloud Connector, SAP Analytics Cloud Agent and SAP Java Connector (JCO).
  - After the connectivity components setup, you can create a connection by providing SAP BW system details and user login credentials and then, the data needs to imported to a model
  - It is possible to import SAP BW data to a new or existing model. Please refer to this Help Document for detailed steps
  - Sharing a connection to other users is possible with a SAP BW system connection
  - For more information on supported features and known limitations when using SAP BW Import Data connections, please refer to this Document. For information on connection setup to SAP BW, please refer to this Import Data Connection from an SAP BW System How-to Guide

- **SAP Business Planning and Consolidation (BPC):**
  - SAP Analytics Cloud enables you to import data from both SAP Business Planning and Consolidation (BPC) for NetWeaver and Microsoft Platform versions. Please check the Prerequisites section for supported version information.
  - To setup a connection to SAP BPC Microsoft Platform version, you’ll require the installation and configuration of the SAP Cloud Connector and SAP Analytics Cloud Agent, whereas the NetWeaver version requires only SAP Cloud Connector

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After the connectivity components setup, a connection can be created by providing SAP BPC system details and user login credentials, then the data needs to be imported into a model.

It is possible to import SAP BPC data into a new or existing model. Please refer to this Help Document for detailed steps.

It is also possible to export plan data back to your SAP BPC system, to synchronize with enterprise data. Please refer to this Help Document for detailed steps.

For more details on importing SAP BPC data, please refer to this Help Document.

For connection setup to SAP BPC NW version, refer to this Import Data Connection from an SAP BPC NW System How-to Guide.

For connection setup to SAP BPC MS version, refer to this Import Data Connection from an SAP BPC MS System How-to Guide.

**SAP Universe:**
- SAP Analytics Cloud supports data imports from the SAP BusinessObjects Business Intelligence Platform Universe (.UNX) objects. Please check the Prerequisites section for the latest supported versions.
- To setup a connection to your SAP Universe platform, this requires the Installation and Configuration of the SAP Cloud Connector and SAP Analytics Cloud Agent.
- After the connectivity components are setup, a connection can be created in SAC by providing SAP BI system details and choosing appropriate the Authentication Type: Enterprise, LDAP, Windows AD, or SAP and then data needs to be imported into a model.
- It is possible to import SAP Universe data into a new or existing model. Please refer to this Help Document for detailed steps.
- Additionally, please refer to this How-to Guide covering the full end-to-end setup process on how to Import Data Connection from an SAP Universe System.

**SQL:**
- SAP Analytics Cloud supports data import from SQL databases (typically using JDBC and Freehand SQL). Please check the Prerequisites section for information on supported databases.
- To setup a connection to your SQL Database, you will need to install and configure the SAP Cloud Connector and SAP Analytics Cloud Agent.
- After the connectivity components are setup, a connection can be created by providing the SQL database system details and user login credentials, afterwards the data is imported into a new or existing model.
- You can query your database data by either writing Freehand SQL syntax, or by using the visual drag-and-drop table-linking mechanism. Please refer to this Help Document for detailed steps.
- For the connection setup to SQL Database, please refer to this Import Data Connection from SQL Database System How-to Guide.

**OData:**
- SAP Analytics Cloud supports OData services for importing data from different data sources like SAP HANA (after exposing the SAP HANA Views as a web service), SAP Hybris Cloud, SAP Business ByDesign for example. Please check the Prerequisites section of the Help pages for the latest supported versions.
- To setup an OData Service connection for an on-premise systems, you will require the installation and configuration of the SAP Cloud Connector.
After the connectivity components are setup, a connection can be created by selecting data source type, authentication type, providing data service URL and user login credentials. Then the data is imported to a model.

For the connection setup, please refer to this how-to guide on Import Data Connection using OData.

**SAP SuccessFactors:**
- SAP Analytics Cloud supports data import from SAP SuccessFactors. Please check the Prerequisites section for the latest supported versions.
- To setup a connection and import data from SAP SuccessFactors, a valid SuccessFactors account is required and additional setup needs to be done on the SuccessFactors’ side too. Please refer to this Help Document for more details.
- After the connectivity components are setup, a connection can be created in SAC by providing the required SAP SuccessFactors system details and user login credentials, then data is imported to a new or existing model. Please refer to this Help Document for detailed steps.
- For detailed end-to-end connection setup for SAP SuccessFactors, please refer to this How-to Guide for Import Data Connection from SAP SuccessFactors.

For information relating to connection types planned for future releases, please refer to the official SAP Analytics Cloud Roadmap.

### 4.2. Infrastructure and Product security

With SAP Analytics Cloud being a Cloud-based, SaaS product, you might be interested to learn more about security related aspects, such as:

- Where/how is the product is hosted?
- How secure is the data center?
- What industry standards are followed / certificates available?
- How is your data uploaded and stored?
- What are the support policies?
- How is security defined in the product?
- Are any roles allowed to access uploaded data?

Firstly, let’s have a closer look at points related to: infrastructure security and product security:
SAP Analytics Cloud is a secured and compliant application running in the secured and certified environment of SAP Cloud Platform, currently hosted on SAP Data Center only. Thus, SAP Analytics Cloud utilizes all the security fundamentals like Certified Operations, Advanced network Security, Reliable data backup, Built-in compliance, integrity and confidentiality features that apply to both SAP Data centers and SAP Cloud Platform.

For information on all SAP Cloud Security, Compliance and agreements covering data processing and privacy, SLAs and support policies for SAP Analytics Cloud (including GDPR/EUDP), please refer to this SAP Cloud Trust Center website.

Certificates include e.g.:

- ISO 27001: Information Security Management System
- ISO 9001: Quality Management
- BS25999: High Availability
- GREEN IT: Energy Efficiency
- ISAE3402 and SSAE16 Testified: International Accounting Regulations
- Infrastructure with 99.9% availability

For information on SAP Data Center infrastructure and policies, please visit the SAP Data Center website.

For more details on data processing and privacy policies, please refer to this document.

**Service Availability:**

- SAP Analytics Cloud has a 99.5% availability (excluding planned maintenance windows)
- 4-hour regular maintenance window
  - APJ Saturdays 3pm UTC
  - EMEA Saturdays 10pm UTC
  - Americas Sundays 4am UTC
- Major upgrades are allowed four times a year per solution. Start times are the same as the regular maintenance windows but up to six hours are allowed
• For more information on the Service Levels for SAP Cloud, please refer to the Service Level Agreement for SAP Cloud Services Document
• Also refer to this SAP Analytics Cloud maintenance window blog
• For more information on SAP Analytics Cloud specific supplemental policies, refer to SAP Cloud for Analytics Supplement Document

Change and Release Management:

• SAP Analytics Cloud is released every two weeks
• Details of each release can be found in the SAP Help Document under the What’s New section (this documentation is accessible from with the product, too) and on the SAP Analytics Cloud Website.
• The system requirements and technical prerequisites document is updated incrementally based on rolling releases
• Release notifications are sent via e-mail to the System Owner user
• Updates are immediately deployed into the production tenant, and there is no option to delay the release based on customer requests
• SAP will notify up-front for any known issues with Wave releases, and standard product processes apply using incidents to report perceived problems
• You can also purchase a separate test/development tenant, but the product version will be the same as in your productive tenant
• There is also an option to preview New Releases with your Test Edition, more details in SAP Analytics Cloud website

Monitoring:

• SAP Analytics Cloud has its own monitoring tool that can be accessed by administrators
• Monitoring covers Users, the number and type of licenses being used, usage patterns, system load per user, memory consumption etc. information is presented in overview dashboards
• There is also an option to view trace files and audit history
• The SAP Cloud Trust Center also provides general availability updates for SAP Cloud
• There will be an option for Admin to create SAP Analytics Cloud Usage Analytics themselves to get more insights of the product usage.

Support Model:

• 24x7 Support Hours. Incidents are managed via the SAP Support Portal
• The support model also includes a live expert chat and other adoption support options
• For more information, please refer to the Support Policy for SAP Cloud Services Document

Security Incident Management:

• Security incidents are submitted via SAP Support
• SAP leverages standard Security Incident management process to enable continuity of normal services as fast as possible, to minimize the impact on your business operations, and to quickly control security vulnerabilities
• Documented response plans from SAP Cloud solutions ensure that a high level of service quality and availability is achieved. The SAP Security Incident management process is aligned with ISO/IEC 27035 principles
• SAP performs Vulnerability scanning at least four times a year to reduce risk and impact to customer data and business processes.
Product Security
SAP Analytics Cloud has in-built security and administrative functionalities to help manage the product and content by appointing the Administrator role. The administrator can define users, roles, teams, and manage user-content, whilst auditing and monitoring the solution.

User Management:

- SAP Analytics Cloud uses SAP Cloud Identity as the default authentication method
- You can also configure Single Sign-On (SSO) authentication to a custom identity provider, using the SAML 2.0 protocol
- SAP Analytics Cloud provides basic user-management helping: create, delete, change and assign role and permissions
- You can also import user data from a flat-file or Active Directory, if you want to synchronize users with other systems, or maintain users in batch mode
- The “System Owner” is the main user, who receives notifications from SAP. The System Owner role can be easily transferred to another user if needed
- From within SAC, you can also add additional users to receive notifications from SAP
- For more information on User Management, please refer to this help document
- For Enabling a Custom SAML Identity Provider, please refer to this help document
- For more information on SAC Security, especially Live Connection, please refer to this Wiki
- For additional reading on specific focus-topics, please consider the following important documents:
  - SAML authentication in SAP Analytics Cloud
  - SSO Setup for SAP Analytics Cloud using Okta as an Identity Provider
  - SSO and Data Access with SAP Analytics Cloud
  - 2487116 - How to configure SAP Analytics Cloud SAML SSO using Active Directory Federation Services
  - 2508186 - How to import Active Directory users in SAP Analytics Cloud
  - 2487567 - Troubleshooting SAML assertions when configuring SAML SSO in SAP Analytics Cloud

Role Management:

- SAP Analytics Cloud comes pre-delivered with sample application roles, which can be enhanced. You should create new roles using the default ones as templates
- Roles are defined to restrict the functionality of the product and/or access to the data
- When your user ID is assigned a role, you will inherit the privileges defined in that role
- When you have multiple roles assigned, you will get the union of all privileges defined in all those roles.
- Some roles can be elected to be requested via a self-service mechanism.
- For more information on User Management, please refer to this help document

Team Management:

- A Team is a group of users
- A user can belong to multiple Teams
• Role can be assigned to the team and all the user in that team will inherit this role
• Each team has a team folder which can only be accessed by the users in this team
• For more information on Team Management, please refer to this help document

Data Access:
• SAP Analytics Cloud has the option to define data-access controls on top of imported data
• When connecting to Live data, SAP Analytics Cloud delegates access controls to the underlying data source
• A preference setting called Data Access Control can be switched on at the dimension level to define data access controls using a read or write property. This restriction will then apply to all models where this dimension is used
• Data-access controls can also be set as a Role-level filter, where to do so the Privacy flag on the Model must be switched on first.
• The respective Model owner always has full read and write access to the data of the model
• For more information on Data Access, please refer to this help document

Content Management:
• SAP Analytics Cloud allows the saving of content files within a Folder structure. These artifacts can include Stories, Digital Boardrooms, and uploaded Files.
• Permissions can then be defined on a file and security is inherited from its parent folder
• You can define both public and private folders
• SAP Analytics Cloud benefits from a simple import and export mechanism, helping restore contents into a tenant, or archiving out to a compressed file
• If there are dependencies between files, then dependent content is automatically selected (you can manually de-select files as required). The exception being the Location dimension, which you must include manually (e.g. if you have used geo enrichment in your model)
• Point of interest data is not exported
• Only public content can be exported
• You cannot import old exports into newer tenants (only the current version +1 is supported)
• SAP Analytics Cloud also provides industry and LoB-specific best practice examples within the product and these can be accessed and imported within Files section. Content samples to help you explore different SAC capabilities are also provided
• For more information on managing files and folder structures, please refer to this Help document
• For more information on content deployment, please refer to this Help document

Auditing:
• SAP Analytics Cloud has the option to audit both system activities and data changes
• Activities are stored in activity logs and data changes are stored in data-change logs
• Activity logging is always on and it supports a search facility and advanced filtering
• The Data-change audit can be switched-on per Model.
• A user needs the ‘Data Change Log’ privileges on a Model to be able to view this log
• Auditing information supports aggregation by Dimension
• For more information, please refer to the Data Changes and Audit Activities help documents.
4.3. Speed up your deployment via templates and pre-built Industry and LoB scenarios

Part of moving to a cloud mindset is this shift to a democratized approach to content creation, where the business are themselves responsible for developing what they want. As such, the end deliverable doesn’t have to be pixel-perfect. It’s the speed of deployment that’s more important here than cosmetic perfection. For sure, you can trust that the numbers are accurate, because they’re reconciling from trusted data-foundations and models built on top of enterprise sources. To encourage user engagement, we’d recommend the use of the in-built template layouts to quickly create stories, using the standardized IBCS charting for version representation, and using smart discovery to uncover hidden patterns.

Tip>> The HICHERT®SUCCESS formula for the International Business Communication Standards (IBCS) are a recommended starting point for you for compelling visual design of SAP Analytics Cloud content. SAP Analytics Cloud is IBCS Certified: https://www.sapanalytics.cloud/ibcs-certification/
www.hichert.com
www.ibcs-a.org

This will naturally lead to a highly effective and shortened lifecycle of business-driven insights – the bi-modal ‘digital twin’ - that will help differentiate your business on-top of a common data foundation. Increasingly, those traditional development and operations phases of building, testing, and transporting BI content will now all happen in one single place, so that the innovation cycle can naturally happen a lot faster. With the application lifecycle management shortened, you’re immediately hitting the productivity sweet-spot.

You should expect frequent releases, quick iterations to fix design defects on the fly, rather than after a long waterfall lifecycle. Like all good dashboard design, make sure you don’t fall into the trap of having individual files for specific charts, and encourage a user community that aims for a high-level of re-use. At the same time, IT can scale-back their involvement in many change management aspects of BI content development, focusing their efforts instead on activities higher up the value-chain, such as seeking alternative ways to navigate the data-chasm and making other sophisticated choices needed to become a real-time, intelligent enterprise.

SAP Analytics Cloud has lots of useful productivity tips to help the designer aim for a high-level of re-use, including but not limited to the ability to copy and paste artefacts in bulk, also grouping and duplicating visualizations or story pages and repointing to new models as needed. Some help may be needed from IT for basic operational activities like running backups of the user models and stories, by scheduling these exports to on-premise file servers if required.

With its deep industry knowledge, IT architecture experience, and business application coverage, SAP is uniquely positioned to deliver value-adding industry and Line-of-Business (LoB) analytical content for SAP Analytics Cloud and SAP Digital Boardroom to its industry customers. By activating, consuming and extending the content, end-users can leverage the ‘turnkey’ capabilities to speed-up the adoption of analytical scenarios and workflows in their own processes.

The SAP Analytics Cloud content package currently covers the major LoB’s and Industries, and is deployable in minutes from within SAP Analytics Cloud’s own web interface, via its Content Repository service. Since most of the content templates are based on an Import Connectivity strategy along with sample data, end-users can directly interact with Stories and Digital Boardrooms covering the most important scenarios for their industry and affected LoBs. SAP has developed this content on top of its own business applications (S/4HANA, SuccessFactors, Hybris Marketing, Hybris Cloud for Customer, Concur, Fieldglass, Business ByDesign, etc.) and its own industry solutions, leveraging the major SAP
technologies (including SAP Business Warehouse). You can refer to the exhaustive technical documentation to map this content to your own SAP or non-SAP applications, as well as customize it further to extend it to build your own tailored solutions. The related knowledge-assets, including deployment examples and technical documentation, help provide immediate value to business-users and IT developers, underscoring the importance of hybrid data-connectivity landscapes as described above.

SAP Analytics Cloud ties your applications together for a complete view of your business, providing holistic analytics across multiple Lines of Business, preventing siloed decision-making & reporting and encouraging collaboration between stakeholders in different departments, thus genuinely allowing you to develop analytic applications that have a direct, positive impact on productivity.

Providing holistic, analytical insights is one thing, but the next business requirement is to take action. It’s sub-optimal and quite archaic to consider a) running transactions within the transactional application’s front-end vs. b) running analytics within the analytic application’s front-end, as two distinct workflows that run by two distinct users. Technically, having the same user perform the two workflows can already be a challenge per se, regarding - for example - the ease of adoption of the front-ends and end-user training requirements; however, SAP Analytics Cloud provides pervasive capabilities that solve these issues by enabling the embedding of insight into every clickable action.

The SAP Analytics portfolio enables two modern options for embedding its insight into other SAP applications. The Embedded In-App option, provided by SAP Analytics Cloud, offers direct API integration with proper security, user management and operations, and the embedding of visualizations into application workflows (to streamline productivity). The Integrated Services option is currently focused on integrating advanced analytics capabilities (such as predictive algorithms) to optimize the application’s processes themselves. This is achieved using the SAP BusinessObjects Predictive Analytics Integrator tool.

For a detailed list of delivered and planned SAP applications for which SAP Analytics Cloud offers connectivity and integration with, please refer to the SAP Analytics Cloud and SAP Digital Boardroom Product Roadmap and SAP Analytics Cloud Product Plan.
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