

SAP BusinessObjects Predictive Analytics 3.1  
2017-10-26

## What's New Guide



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# 1 SAP BusinessObjects Predictive Analytics Overview

SAP BusinessObjects Predictive Analytics is a data mining and predictive modeling solution that enables you to discover hidden insights and relationships in your data and to build predictive models from which you can make predictions about future events.

Automated Analytics includes the following modules:

- Data Manager is used to facilitate the preparation of the data to be used in the analytics project.
- Modeler enables the analyst to create in a homogenous and easy-handling workflow models such as classification, regression, clustering, time series, and association rules. Models can be exported in different formats so that you can easily apply them in your production environment.
- Social extracts and uses implicit structural relational information stored in different kinds of data sets, improving the decision and prediction capacities of the models. It can represent data in the form of graphs that show how the different data are linked. Dedicated workflows help you create colocation and frequent path analyses based on geo-referenced data.
- Recommendation generates product recommendations for your customers based on a link analysis provided by Social.

Refer to [Automated Analytics online help](#).

Expert Analytics enables you to do the following:

- Produce deep analysis of the data using different visualization techniques, such as scatter matrix charts, parallel coordinates, cluster charts, and decision trees.
- Perform various analyses and build models on the data, including time series forecasting, outlier detection, trend analysis, classification analysis, segmentation analysis, and affinity analysis.
- Use a range of predictive algorithms, the R open-source statistical analysis language, and in-memory data mining capabilities for handling large volume data analysis efficiently.

Refer to [Expert Analytics online help](#)

Predictive Factory leverages the business value of the predictive models, ensuring the link with in production databases that feed operational systems. This user-friendly interface allows users, from business analysts to data scientists, to operationalize and monitor the predictive models, in a secured and productive workflow, through:

- all in one management of predictive models associated to a business context: importation of existing models created in Automated Analytics or Expert Analytics; direct authoring of time series forecasting models; management of models versioning; monitoring of the models all along their lifecycle,
- precise scheduling of main industrialization tasks: application of the models on new data, retraining of the models to insure their performance level and accuracy, detection of the models deviations.

Refer to [Predictive Factory online help](#)

## 2 SAP BusinessObjects Predictive Analytics Installation Options

The following installation options are available in this release of SAP BusinessObjects Predictive Analytics.

### You want to install SAP BusinessObjects Predictive Analytics Desktop

The following products are already installed	Result
None	Both user interfaces - Automated Analytics and Expert Analytics - are installed in a newly-created SAP BusinessObjects Predictive Analytics folder.
Earlier version of SAP BusinessObjects Predictive Analytics	Both user interfaces - Automated Analytics and Expert Analytics - are installed in the SAP BusinessObjects Predictive Analytics folder replacing the previous version.
SAP Predictive Analysis	You need to uninstall SAP Predictive Analysis before installing SAP BusinessObjects Predictive Analytics.  Both user interfaces - Automated Analytics and Expert Analytics - are installed in a newly-created SAP BusinessObjects Predictive Analytics folder.
SAP Lumira	Both user interfaces - Automated Analytics and Expert Analytics - are installed in a newly-created SAP BusinessObjects Predictive Analytics folder.  SAP Lumira is not uninstalled. The existing version you have installed remains in a separate folder to SAP BusinessObjects Predictive Analytics. No message is displayed to the user.
Either one or more of the following products: <ul style="list-style-type: none"> <li>• SAP InfiniteInsight - Workstation</li> <li>• SAP InfiniteInsight - Authenticated Server</li> </ul>	Both user interfaces - Automated Analytics and Expert Analytics are installed in a newly-created SAP BusinessObjects Predictive Analytics folder.  SAP InfiniteInsight is not uninstalled. The existing version you have installed remains in a separate folder to SAP BusinessObjects Predictive Analytics. No message is displayed to the user.

The following products are already installed	Result
SAP Predictive Analysis + one of the following: <ul style="list-style-type: none"> <li>• SAP InfiniteInsight - Authenticated Server</li> <li>• SAP InfiniteInsight - Workstation</li> </ul>	<p>SAP InfiniteInsight is not uninstalled. The existing version you have installed remains in a separate folder to SAP BusinessObjects Predictive Analytics. No message is displayed to the user.</p> <p>You need to uninstall SAP Predictive Analysis before installing SAP BusinessObjects Predictive Analytics.</p> <p>Both user interfaces - Automated Analytics and Expert Analytics are installed in a newly-created SAP BusinessObjects Predictive Analytics folder.</p>

For more information about installing SAP BusinessObjects Predictive Analytics, refer to the [Desktop Installation Guide](#).

## You want to install Automated Analytics Server

The following products are already installed	Result
None	Only the Automated Analytics user interface is installed.
SAP InfiniteInsight - Authenticated Server	<p>You need to follow the instructions as if you were upgrading the SAP InfiniteInsight Authenticated Server to the next version.</p> <p>Only the Automated Analytics user interface is installed.</p>
SAP InfiniteInsight - Workstation	<p>SAP InfiniteInsight is not uninstalled. The existing version you have installed remains in a separate folder to the Automated Analytics Server. No message is displayed to the user.</p> <p>Only the Automated Analytics user interface is installed.</p>
SAP Predictive Analysis + SAP InfiniteInsight - Authenticated Server	<p>SAP Predictive Analysis is not uninstalled. No message is displayed to the user.</p> <p>You need to follow the instructions as if you were upgrading the SAP InfiniteInsight Authenticated Server to the next version.</p> <p>Only the Automated Analytics user interface is installed.</p>
SAP Predictive Analysis + SAP InfiniteInsight - Workstation	<p>SAP Predictive Analysis is not uninstalled. No message is displayed to the user.</p> <p>SAP InfiniteInsight is not uninstalled. The existing version you have installed remains in a separate folder to the Automated Analytics Server. No message is displayed to the user.</p> <p>Only the Automated Analytics user interface is installed.</p>

The following products are already installed	Result
SAP Predictive Analysis	SAP Predictive Analysis is not uninstalled. No message is displayed to the user.  Only the Automated Analytics user interface is installed.

For more information about installing Automated Analytics Server, refer to:

- the [Server Installation Guide for UNIX](#)
- the [Server Installation Guide for Windows](#).

## You want to install Predictive Factory

The following products are already installed	Result
None	Predictive Factory is installed.
A previous version of Predictive Factory	Predictive Factory is automatically upgraded to the new version.  <div style="background-color: #fff9c4; padding: 5px;"> <p><b>⚠ Caution</b></p> <p>Be careful not to uninstall the previous version before installing the new one, or you will lose all the objects created in Predictive Factory such as the modeling servers, the projects, the tasks.</p> </div>

For more information about installing Predictive Factory, refer to the [Predictive Factory Installation and Administration Guide](#).

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## 3 What's New in SAP BusinessObjects Predictive Analytics 3.1

SAP BusinessObjects Predictive Analytics 3.1 continues developing the next generation of Predictive Analytics through Predictive Factory. This release 3.1 delivers new functionalities, optimization, and usability focussing on two areas:

- **Automating the entire predictive process**, from data preparation to consumption of predictions in business intelligence systems and business applications, while guaranteeing predictive models performance. This optimizes data scientists and business analysts' productivity, while maintaining the flexibility of accessible functionalities, depending of their analytics mastery level
- **Managing predictive models as high value assets of the company**, ensuring their business accuracy, predictive power, and suitability, to guarantee relevant and reliable business decisions based on predictions provided by your models

### New in Predictive Factory

#### Operationalization of models created with Expert Analytics

Expert Models can be imported into Predictive Factory without any manual intervention from data scientists. Models created in Expert Analytics by high skilled data scientists can be managed in Predictive Factory by data scientists or by business analysts, apply and/or retrain tasks can be scheduled on a recurring or event basis, as for models created in Automated Analytics; deviation can be automatically detected and performance of the models monitored automatically.

Importing and managing Expert models in Predictive Factory frees data scientists from repetitive work and allows them to focus their attention on higher value activities or projects. It facilitates the adoption of advanced models by business analysts. This also allowst Analytics or IT departments to run advanced models such as those obtained through Expert Analytics, in production systems with increased levels of security and robustness.

#### Authoring of Time Series Forecasting

Business analysts and data scientists can now produce time series forecasting models directly in Predictive Factory. They can access pre- prepared data sources containing a time-stamped signal, select with precision the training period and produce in few clicks an optimized and totally automated forecasting model.

The lifecycle of this model will be managed in Predictive Factory as for any other imported model, for activities such as: scheduling of apply and retrain task, scheduling of deviation task, and monitoring of model performance.

#### Improved Embedded Help

You can now continue using the application while the Web Assistant displays the help for Predictive Factory.

Use the new guided tour feature to learn how to set up the connection to an Automated Analytics server. The guided tour leads you through each step of the process directly in the application.

## New in Big Data

### Improved versions of Spark and SparkSQL

For Big Data platform on Hadoop, SAP BusinessObjects Predictive Analytics release 3.1 supports Spark version 1.6 when accessing SparkSQL as data source or for doing Native Spark Modeling on Hive data source.

Native Spark Modeling feature delegates heavy data-intensive processing of automated algorithms on Spark and offers higher performance and scalability benefits for training.

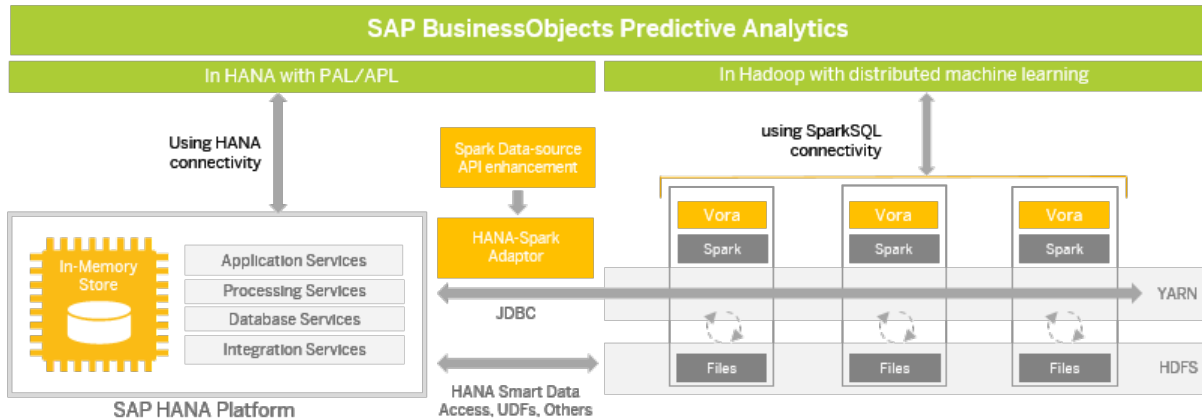
#### **i** Note

For Native Spark Modeling, Spark is used as the distributed processing engine. Refer to [PAM](#) for more details on the exact Hadoop distributions and versions.

### Predictive Modeling for SAP HANA Vora

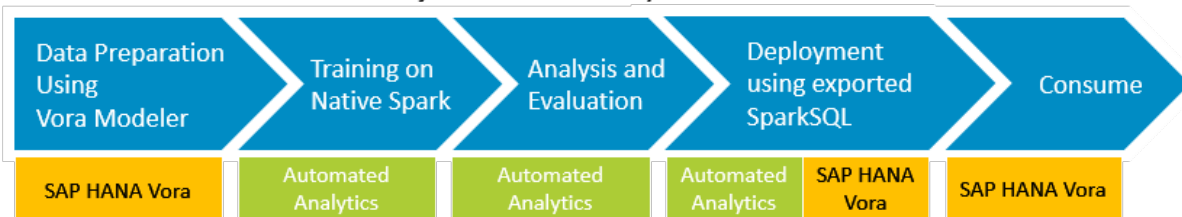
SAP HANA Vora is an execution framework on Spark to provide enriched interactive analytics on enterprise and Hadoop data. With the 3.1 release, you can now connect to SAP HANA Vora and perform predictive modeling using Automated Analytics. To access SAP HANA Vora from a Hadoop environment, you will need the Simba SparkSQL ODBC driver in Automated Analytics. You can perform Native Spark Modeling on the same Spark instance as that of SAP HANA Vora. This allows distributed processing of automated algorithms on Spark for SAP HANA Vora data sources.

### SAP BusinessObjects Predictive Analytics with SAP HANA Vora



Data Manipulation and in-database modeling scenarios are not supported in this release for SAP HANA Vora. However, as an alternative, you can execute these steps in one of the possible ways illustrated below:

### SAP HANA Vora and SAP BusinessObjects Predictive Analytics



**■** Step performed in SAP HANA Vora    **■** Step performed in Automated Analytics



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## New for SAP HANA Support

### Generate the scoring formula as an SAP HANA user defined function (UDF)

Automated Analytics Modeler now supports exporting scoring equations as user-defined functions. These functions can be invoked from a calculation view, an SQL view or from ABAP code. These functions automatically generate a score in real-time based on new or updated data. These scores can then be used in reports or business applications. These real-time scores can also be surfaced back into SAP BusinessWarehouse (BW) cubes for consumption in BW queries. This provides a complete end-to-end predictive workflow against BW on SAP HANA including SAP's next generation Data warehouse BW/4HANA.

### Automated Analytics supports SAP HANA Express Edition

You can now use Automated Analytics with SAP HANA, Express Edition, a streamlined, downloadable version of SAP HANA in-memory platform optimized for fast and continuous development of data-driven applications.

### New in SAP HANA APL

- SAP HANA APL runs on the new version 3.1 of the Automated Analytics engine.
- SAP HANA 1.0 SPS10 is no longer supported.
- The set of stored procedures `SIMPLEAPL` is deprecated. Use the stored procedures of the `HCO_PA_APL` delivery unit instead.
- The `HANAUDF` value of `APL/CodeType` key of `OPERATION_CONFIG` input table is supported in the `EXPORT_APPLY_CODE` function to allow export to an SAP HANA UDF table.
- The `APL/ForcePositiveForecast` key of `OPERATION_CONFIG` input table is supported in the `FORECAST` function to avoid negative forecasts.
- Three packages are available for download according to the architecture of your operating system:
  - Intel
  - IBM Power Systems (Big Endian)
  - IBM Power Systems (Little Endian)

For more details on the revisions of SAP HANA supported by each system, please refer to the [PAM](#) .

## New in Expert Analytics

### Exporting Model Chains from Expert Analytics in Predictive Factory

You can export a chain of trained models from Expert Analytics to a local file for consumption in Predictive Factory for scheduling, retrain, and apply tasks. What's more, Predictive Factory will enable you to monitor the evolution of such models over time.

## New in Data Manager

### Added conversion functions for ABAP date/datetime fields

ABAP date and datetime fields are stored as strings in the database. For predictive modeling such as time series forecasting, the user may need a date rather than a string. In version 3.1 specific functions were added to do the conversion so that the user can easily create date or datetime variables from ABAP fields.

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## New in Automated Analytics SDK

The new mode `Kxen_learnAndApply` performs the learn and apply steps where:

- The input application data set specification is considered as identical to the training data set one, to make the model configuration easier.
- The data cache is enabled for better performance.

This mode can only apply to the `sendMode()` API call. It is particularly suitable for the time series forecasting, where modeling and forecasting are performed using the same data set.

## 4 Related Information

### 4.1 Important SAP Notes

These SAP Notes contain the latest information about this release of SAP BusinessObjects Predictive Analytics, as well as corrections to the documentation.

Make sure that you have the most up-to-date version of each SAP Note, which you can find on SAP Service Marketplace at <http://support.sap.com/notes>.

SAP Note Number	Title
<a href="#">2333300</a>	SAP BusinessObjects Predictive Analytics 3.1 Release Information (central note)
<a href="#">2333299</a>	SAP BusinessObjects Predictive Analytics 3.1: Installation, Upgrades, and Patches

### 4.2 Documentation Resources

The following table provides the list of guides available for SAP BusinessObjects Predictive Analytics:

What do you want to do?	Then go here...
Get instant help on using Expert Analytics, or find information on a feature or workflow.	The Online Help is available within Expert Analytics as follows: <ul style="list-style-type: none"><li>Click the Help icon (?) on a dialog box or window.</li><li>Select menu ► <a href="#">Help</a> ► <a href="#">Help</a> ►.</li></ul>
Get instant help on using Automated Analytics, or find information on a feature or workflow.	Contextual help for each panel is available within Automated Analytics. Either press <b>F1</b> or select menu ► <a href="#">Help</a> ► <a href="#">Get Help for this Panel</a> ►.  Full, searchable online help for Automated Analytics is available: Select menu ► <a href="#">Help</a> ► <a href="#">Open Full Searchable Help</a> ►.
Get instant help on using Predictive Factory.	From anywhere in the application <ul style="list-style-type: none"><li>Click the Help icon (?) to activate the integrated In-Application Assistance.</li><li>Click the User Menu and select Documentation to open the Full Searchable Help.</li></ul>

What do you want to do?	Then go here...
Get complete documentation on using SAP BusinessObjects Predictive Analytics (English)	<a href="#">SAP BusinessObjects Predictive Analytics Home page</a>
Get documentation on using SAP BusinessObjects Predictive Analytics in a different language. <div style="background-color: #fff9c4; padding: 5px; margin-top: 10px;"> <p><b>i Note</b></p> <p>Documentation in languages other than English is only available for certain guides.</p> </div>	<a href="#">SAP All Products page</a> Select a language, then select SAP BusinessObjects Predictive Analytics and the version required from the drop-down lists.
Get the latest information on database and software support for SAP BusinessObjects Predictive Analytics.	Go to <a href="#">SAP Product Availability Matrix</a> and search for "SAP BusinessObjects Predictive Analytics"

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