

Microsoft Dynamics NAV

Business Analytics Technical White Paper

Technical White Paper

This technical white paper provides a conceptual overview of Business Analytics for Microsoft Dynamics NAV 2009, Basic and Advanced. Furthermore, it contains instructions for installing and configuring Business Analytics.

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Introduction, Overview and Architecture

Business Analytics for Microsoft Dynamics NAV provides an interface between Microsoft Dynamics NAV and Microsoft SQL Server Analysis Services. You must use Microsoft SQL Server 2008 or 2005 for the Business Analytics part, and you can use Microsoft Dynamics NAV Classic with Microsoft SQL Server, or Microsoft Dynamics NAV 2009 Classic, with the Classic database server installed. Business Analytics is not compliant with the RoleTailored client for Microsoft Dynamics NAV.

What Business Analytics does, put simply:

- Business Analytics makes it possible to populate cubes in Microsoft SQL Server Analysis Services automatically with data from Microsoft Dynamics NAV. Any OLAP client, such as Microsoft Office Excel or Business Analytics Advanced, that can access Analysis Services can then be used to analyze the data on Analysis Services, create reports, and so forth.

In order to understand how this works, some further explanation is required:

There are two versions of Business Analytics: Basic and Advanced.

The *Basic* version is the starting point, and must always be installed in order to run Business Analytics. It has these features:

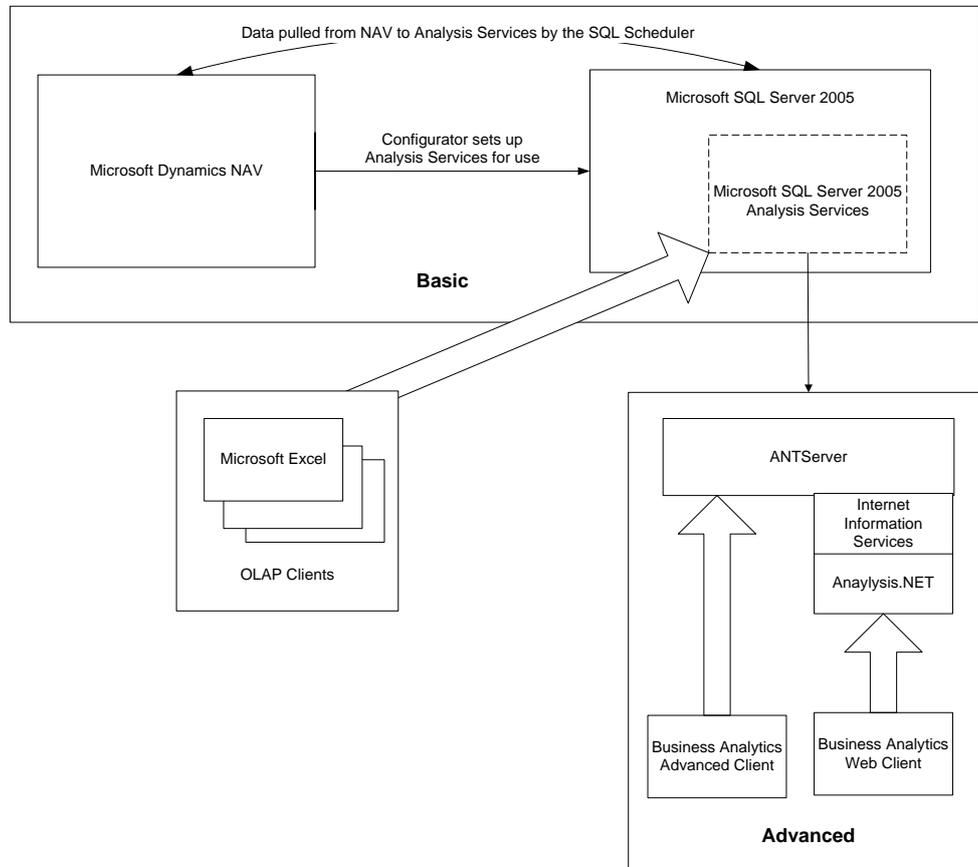
- A tool called the *configurator*. This tool sets up Analysis Services based on a set of definitions created inside Microsoft Dynamics NAV. This means that the configurator creates cubes, dimensions and measures. It also performs other essential tasks that are required to use Analysis Services, such as setting up a role on the SQL Server. And, finally, it creates a SQL Agent job to pull data from Microsoft Dynamics NAV automatically. In short: the configurator creates a *data mart* on Analysis Services.
- A set of predefined cubes, dimensions, and measures that can be used out-of-the-box to get started with business intelligence.
- A set of tools in Microsoft Dynamics NAV for changing the predefined cubes, creating new ones, and so forth.

The *Advanced* version adds:

- A client that has views and reports already defined, working with the predefined cubes that are installed with the Basic version.
- Easy and intuitive setup and access to the data in the data mart.
- A server component (the *ANTServer*) that makes setting up security easy, so that user access to the data mart can be controlled.
- Uniform access to all data marts that the ANTServer works with, so that a full data warehouse can be created, where the Microsoft Dynamics NAV data mart is one.

In addition to the OLAP client provided with Business Analytics Advanced, other OLAP clients, such as Microsoft Office Excel can be used to access the data mart.

The following diagram shows these components, and how they interact:



The important points to remember are:

- The *configurator* sets up the necessary structures on the Microsoft SQL Server and the Microsoft SQL Server Analysis Services, based on the design made in Microsoft Dynamics NAV. The configurator uses Microsoft SQL Server Integration Services for this.
- Once the configurator has been run, data is pulled from the Microsoft Dynamics NAV Classic Database Server by the SQL Agent to Analysis Servers. The configurator sets up a default schedule for this; this schedule can, however, be changed to suit a specific installation (for example, this process can be set to run outside normal operating hours, and so forth.)
- The configurator needs only to be run again if the layout of cubes and so forth is changed in Microsoft Dynamics NAV. Changes to "first order data" do not require the configurator to be run.

- The “Basic” installation always needs to be performed. If you want to use the “Advanced” solution, you must perform the Basic installation first.
- Any “OLAP client” can be used to access the data that has been copied to Analysis Services.

The *Advanced* version adds the following to what is offered by the *Basic* version:

- When using the Advanced solution, data is accessed through the ANTServer. This provides the possibility of setting more fine-grained security than is possible when using the Basic solution.
- The ANTServer provides a Web-based interface, making it possible to perform analyses from a Web browser.
- When the Advanced solution has been set up on the server, no further setup is necessary for the Business Analytics Advanced client. A default setup is immediately useful. When using the Basic version and, for example, Microsoft Excel, the dataconnection to the Analysis Server needs to be setup.
- When using the Business Analytics client that comes with the Advanced solution, as well as when accessing the ANTServer through a Web browser and the Analysis.NET application, a dedicated query language is used.
- The ANTServer can acquire data from OLAP solutions other than Microsoft SQL Server Analysis Services. Using the ANTServer adds a layer of abstraction that makes access to data from a variety of sources uniform (albeit only when using the dedicated clients, as described.)

About This White Paper

This white paper provides an overview of what Business Analytics, Basic and Advanced, is used for. It also provides a set of instructions for installing Business Analytics in various scenarios. It does *not*, however, contain the following:

- General descriptions of Microsoft SQL Server Analysis Services. The Help documentation for Microsoft SQL Server will provide any information you need. This means that information about best practices for installing, maintaining, and using Microsoft SQL Server and Microsoft SQL Server Analysis Services must be found in that documentation.
- How to create and modify cubes in Microsoft Dynamics NAV. There is Help associated with the tools inside Microsoft Dynamics NAV.
- How to use the Business Analytics Advanced client. There is Help available in the client itself.

Installation and Setup

This section describes how to install and set up Business Analytics. It is divided into four separate subsections:

- The requirements and the preconditions that must be fulfilled before you install Business Analytics.

- How to install and set up Business Analytics Basic when using Microsoft Dynamics NAV SQL option.
- How to install and set up Business Analytics Basic when using Microsoft Dynamics NAV with a NAV Database Server.
- How to install Business Analytics Advanced. This subsection includes how to install the ANTServer, the Analysis.NET application, and the Business Analytics Advanced client.

Requirements and Preconditions

The following are the requirements for installing Business Analytics:

- Microsoft SQL Server 2008 or Microsoft SQL Server 2005, Standard edition or better, with latest service pack at the time of installation.
 - The following options must be installed:
 - Analysis Services
 - Integration Services
- A Microsoft Dynamics NAV Classic Database Server, either SQL Option or Native database.
 - NODBC must be installed when using a NAV Classic Database Server.
- A Microsoft Dynamics NAV Classic client must be installed on the machine where Analysis Services is installed.
- The user performing the installation must be a member of the SUPER role in Microsoft Dynamics NAV.

Note that you need to install Microsoft SQL Server Analysis Services and Microsoft SQL Server Integration Services no matter what database you are using for Microsoft Dynamic NAV.

You should carefully read the requirements – hardware and other—that apply to the version of Microsoft SQL Server that you will be using.

Installing Business Analytics Basic on SQL option

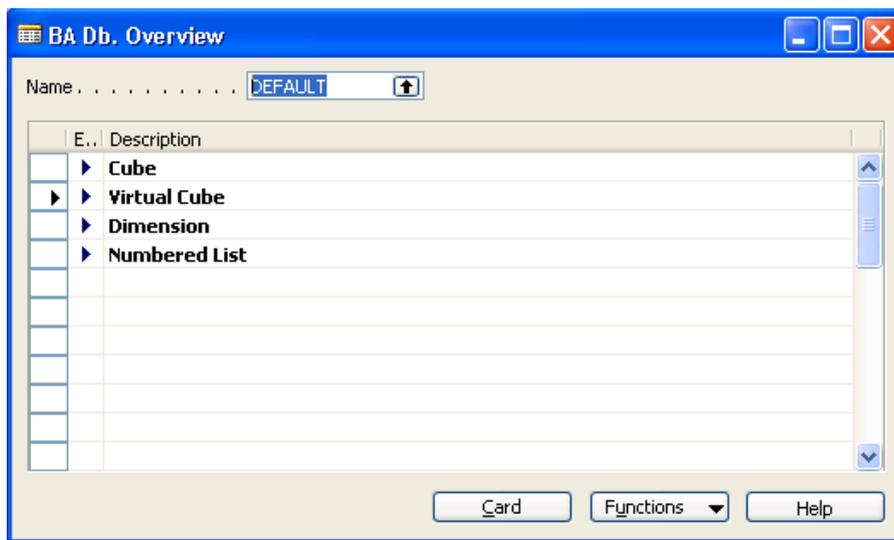
The instructions in this section target Microsoft Dynamics NAV 2009 with Microsoft SQL Server.

Installing Business Analytics on Microsoft SQL Server

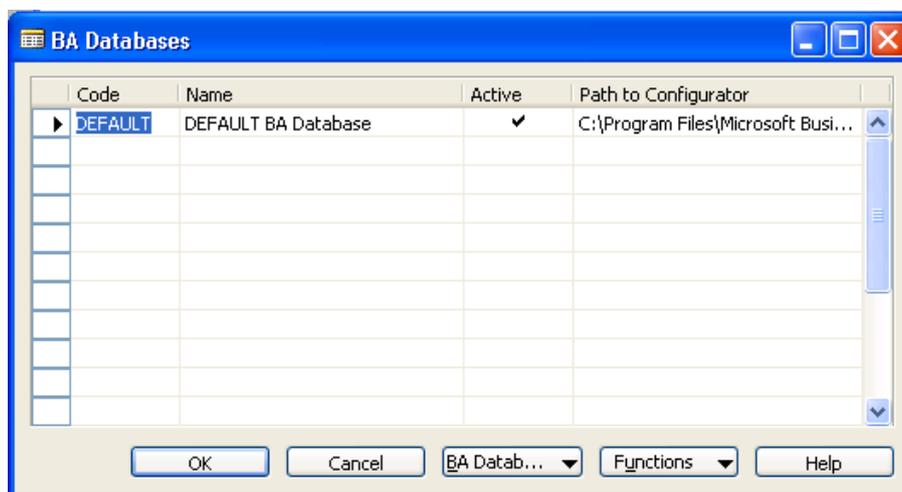
1. Select the Configurator folder that aligns with the version of SQL Server you are using, and copy the folder to the machine on which you are installing Business Analytics. This should be a final, not a temporary location, such as in the Microsoft Dynamics NAV program files folder.

This folder contains the Business Analytics files you need, including Configurator.exe.

2. Right-click the Microsoft Dynamics NAV 2009 Classic with Microsoft SQL Server icon, and then click Run as administrator.
3. In the Microsoft Dynamics NAV Classic client, in the navigation pane, click **Administration**, click **Application Setup**, click **General**, and then click **Business Analytics Setup**. The following form opens:



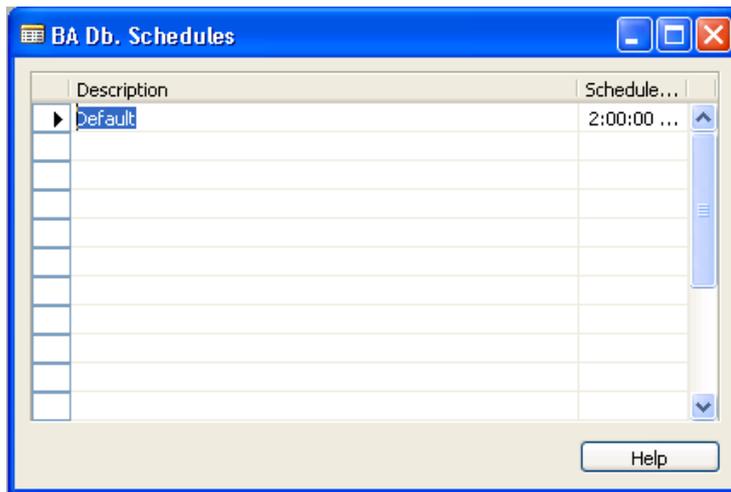
4. Click on the AssistButton for the **Name** field (where the value is "DEFAULT"). The following form opens:



5. In the **Path to Configurator** field, enter the path to the Configurator.exe file located in the Configurator folder that you copied to the local file system. Click OK.
6. Open the **BA Databases** form once again. Make sure that the "Path to Configurator" has been filled out with the correct value.

At this point you should consider how often Analysis Services should pull data from the Microsoft Dynamics NAV database.

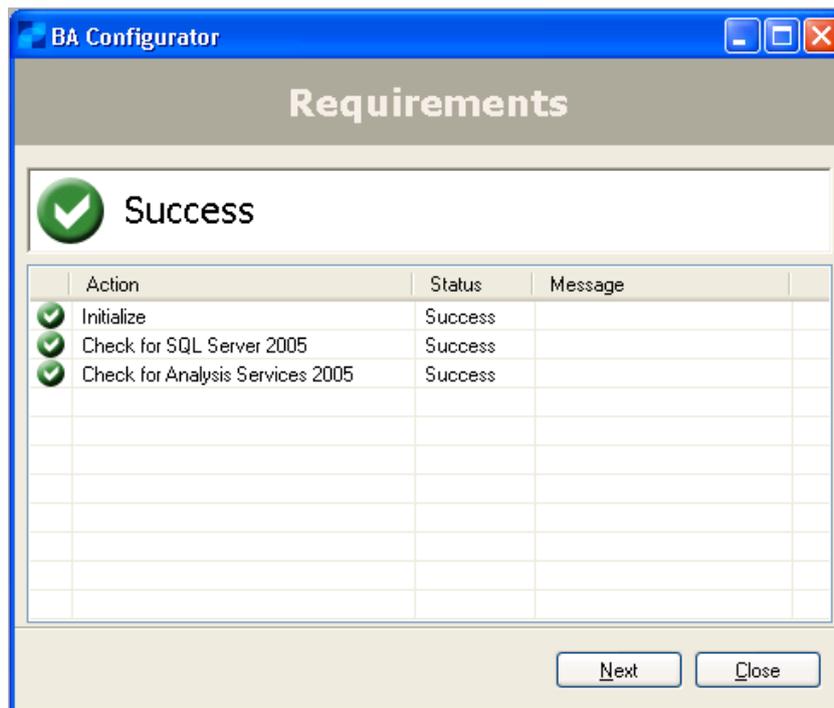
7. Click **BA Database**, and then click **Schedules**. The following form opens:



You can set the job to start at a given time in a day. If a job needs to run several times a day, you can add more lines. You do not have to schedule a job to complete the steps in this procedure.

8. Click **Functions**, and then click **Update XML**.
9. Click **Functions**, and then click **Start Configurator**. Click **Yes**.

The Business Analytics Configurator runs, and the following window opens:



The configurator does not require much interaction: every time a set of actions has completed, as indicated by all check marks turning green, you click **Next**.

Note Some of the actions can be time consuming. You may want to run the Configurator outside normal operating hours, because some of the actions can impact the performance of the Microsoft Dynamics NAV installation. If possible, run a trial on a test setup to see how long the job will take. The actual time depends on the complexity of the setup and the amount of data involved.

It is very important that you do not interrupt the process, and that you wait until the last set of actions has completed before you close the Configurator.

Effect of Configurator

Once the Configurator has finished, the following has happened:

- Analysis Services have been configured with the cubes, measures, and dimensions that are defined in the default setup in Microsoft Dynamics NAV.
- Data for the setup has been copied from Microsoft Dynamics NAV.
- A user and a group have been created on the machine. (The user is BAUSR_Machinename and the group is BA Administrators.)
- The user is added to the SQL Server database and only being used for running the Analysis Services Database.

You can see the setup on Analysis Services by using the Microsoft SQL Server Management Studio, and connection to the Analysis Server. If this role has not been set up in Analysis Services, you have to run the configurator again.

If, for some reason, you need to change the schedule, and this is the *only* setup change you need to make, you can avoid running the configurator again this way:

1. In SQL Server Management Studio, connect to the Database Engine (not Analysis Services.)
2. Expand SQL Server Agent, and then expand Jobs.
3. Locate a job called DEFAULT BA Database. Double-click this job if you want to view and change properties, including the schedule.

Note A value you enter this way will be overwritten the next time you run the configurator. You should also enter this schedule in the BA Setup in Microsoft Dynamics NAV so it will be picked up if and when the configurator is run again. Or you can save the job in the SQL Agent under a different name.

This concludes the setup of Business Analytics Basic on Microsoft Dynamics NAV 2009 with Microsoft SQL Server option. Now you can connect to the Analysis Services from, for example, Microsoft Excel, or you can install Business Analytics Advanced.

Installing Business Analytics Basic on Database Server

The procedure for installing Business Analytics on Microsoft Dynamics NAV running on a Classic Database Server is the same as when installing for Microsoft Dynamics NAV 2009 Classic with Microsoft SQL Server option, except for the following extra requirements:

- NODBC must be installed.
- CFRONT DLL must be located in the same folder in which you copied the Configurator. The CFRONT DLL should already be in this folder, unless you removed it.

When these requirements have been fulfilled, the procedures for installing Business Analytics Basic are the same as when installing using the Microsoft Dynamics NAV Classic with Microsoft SQL Server option.

Installing Business Analytics Advanced

Business Analytics Advanced comes with a number of different clients – An Advanced client and a .Net application. The installation depends on which client that needs to be installed.

After unzipping the files from Partner Source the Business Analytics Suite 2K7 (3.0.2845.0) folder is available. In here there are two subfolders – one for the Advanced client – called Suite, and one for the .Net application– named Webclient. Each folder contains an installation file.

- BusinessAnalyticsSuite.exe

This file is the installation file for the Business Analytics Advanced client and the Business Analytics Enterprise Manager.

- BusinessAnalyticsNET.exe

This file is the installation file for the Business Analytics .NET application.

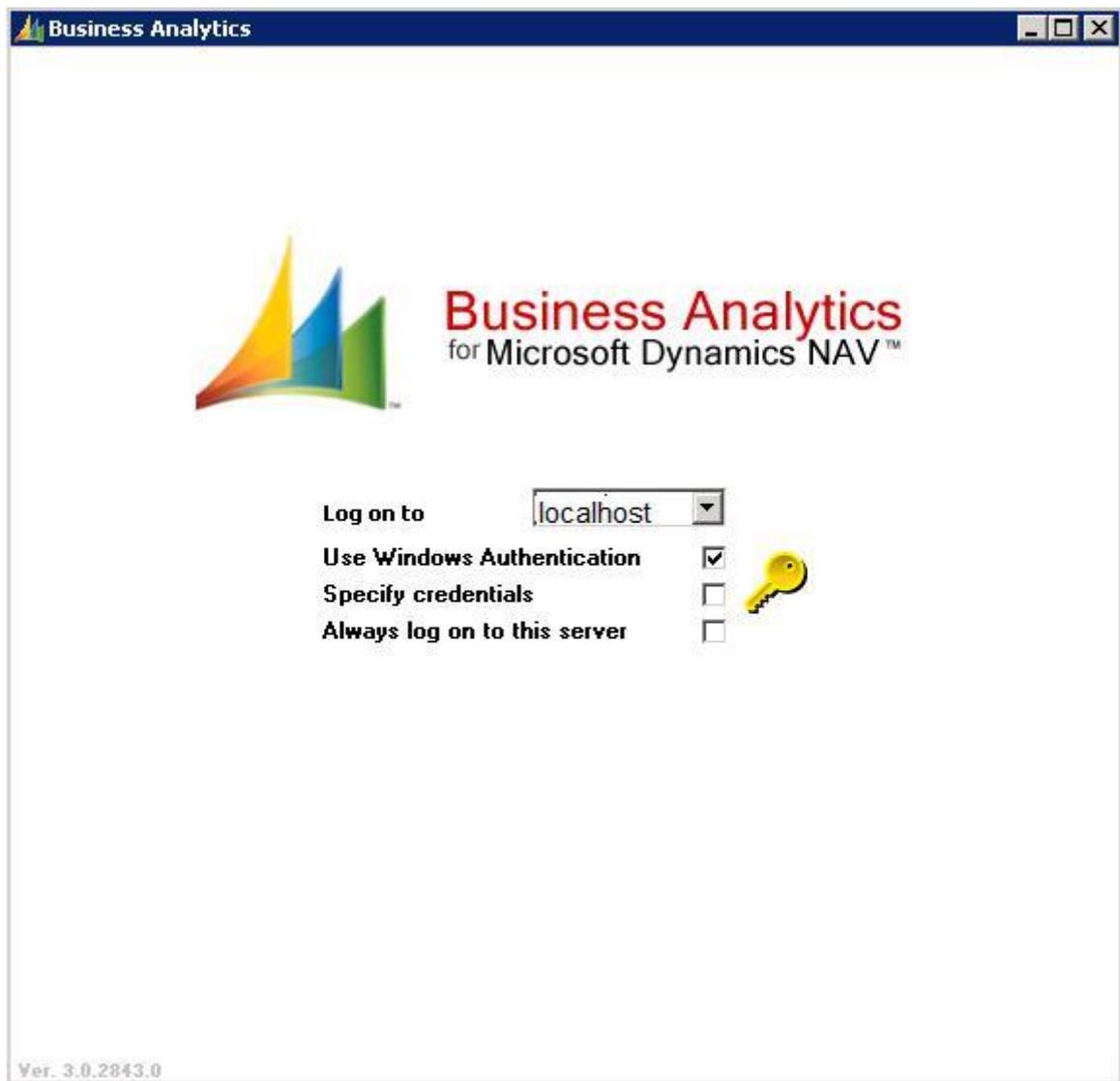
The following are the requirements and preconditions for installing Business Analytics Advanced:

- Business Analytics Basic must have been set up as described previously in this document.
- For Business Analytics .NET, you must have installed:
 - Microsoft Internet Information Services, version 5.1 or higher
 - The Microsoft .NET Framework version 2.0

Installing the Business Analytics Suite

1. Double-click the BusinessAnalyticsSuite.exe, and on the Welcome page, click **Next**.
2. Accept the license agreement and continue to click **Next** until the installation begins.
3. The Typical installation provides all the components and is appropriate for installation on the machine on which the Analysis Services are running. For other machines, you will only need to install the Business Analytics Analysis client. The Excellerator is a Microsoft Excel plug-in that makes it possible to access the ANTServer from Microsoft Excel. There is documentation for it in the Help for the Business Analytics Advanced client.)
4. Click **Finish** when the installation is complete. No further interaction is needed with the installer.

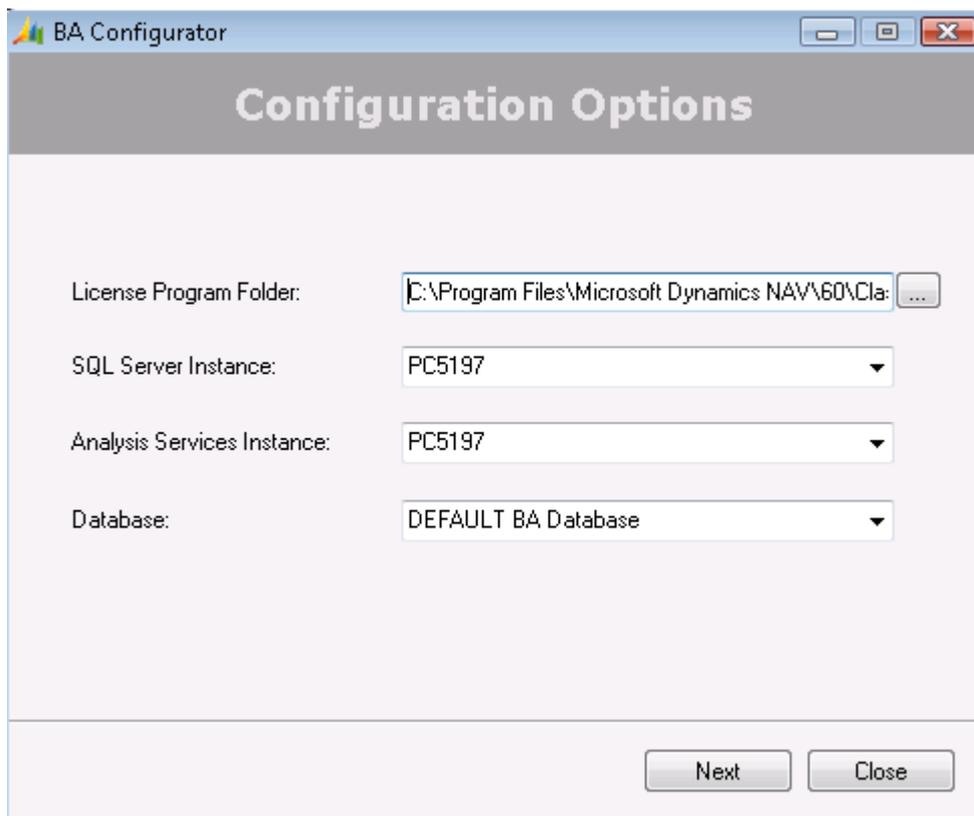
As part of the installation, the ANTServer is installed and started. After this, the Business Analytics Advanced client is started. The login screen looks like this:



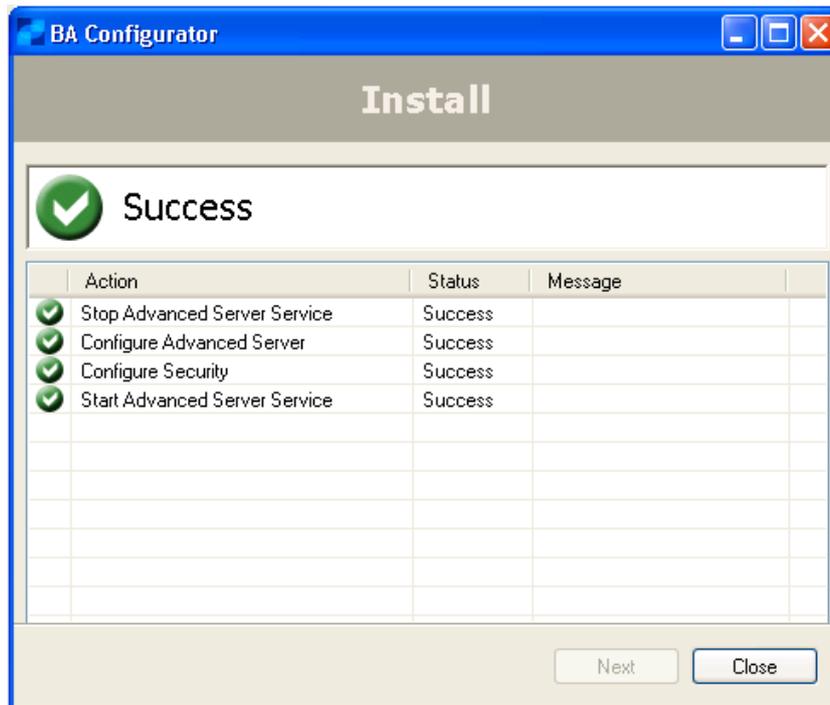
Click the key icon to log in.

At this point you are running on a temporary demo license. It will expire 30 days after installation. In order to use your Microsoft Dynamics license (*.flf) file, follow this procedure:

1. Close the Business Analytics Advance client.
2. Navigate to configurator.exe, right-click it, and on the shortcut menu, click **Run as administrator**. Make sure you run the file that corresponds with your version of SQL Server.
3. Click **Next**. The Configuration Options page looks like this:



4. For **License Program Folder**, browse to the folder where your Microsoft Dynamics NAV license file is located. Select this folder, and click **OK**.
5. Select the database to use from the Database drop-down list populated with the available choices.
6. Click **Next**. The Install window shows the progress of your installation.



7. When all the steps have completed successfully, you can click **Close**.

The ANTServer is now using your Microsoft Dynamics NAV license instead of the demo license. And Business Analytics Advanced is connected to the correct database.

Installing Business Analytics NET

After you have installed and configured the Business Analytics Suite, you can install Business Analytics NET. This is the second installer file you can download from PartnerSource, called BusinessAnalyticsNET.exe. Install by double-clicking.

The installer requires no interaction, so you should just let it run until it finishes.

The installation of Business Analytics NET does the following:

- It installs .NET application on Internet Information Services on the machine where the installer is run, and sets the relevant properties for this application.
- It creates a virtual directory, called /AnalysisNET to point to the application.

Once the Business Analytics NET application has been installed successfully, it can thus be accessed at the URL <http://<name of your server/AnalysisNET>.

Using Business Analytics Advanced

Business Analytics Advanced is very easy to access once it has been installed. It can be accessed by using either the Business Analytics Advanced client (Start Menu, Business Analytics, Business Analytics), or it can be accessed from the Microsoft Internet Explorer at http://<name_of_your_server/AnalysisNET, provided you have also installed the Business Analysis NET application.

The Business Analytics Advanced client (and the Business Analytics NET application) both get their data not from Analysis Services directly, but through the ANTServer. This means that both clients already know where to find data and et cetera, and you can start analyzing right away.

For information on how to use the Business Analytics Advanced client, refer to the Help that comes with the client itself. It is available as part of the client installation package.

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