WhitePaper
BIA Business Intelligence Accelerator

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Introduction

Template-based ETL Generator

BIA Business Intelligence Accelerator® is a Visual Studio Add-In, which generates custom-defined SQL Server Integration Service (SSIS)-packages. It can be used wherever data needs to be extracted, loaded or transformed. Through the SSIS-generator the user is gaining maximum quality compared to manually generated SSIS-packages. Time consuming generation and servicing of SSIS-packages is not necessary, this is reducing time and cost, not only in the development, but also in running the system.

Time for development is reduced to about 50%.

The approach on 3 levels achieves a reduction of the development time during the development itself as well as minimized time for maintenance:

1. Template based approach: many possible templates are already within the scope of supply. These cover the most common integration scenarios. Of course it is possible to modify these or create a custom made template.

2. Flexible SSIS-generator: instead of having to generate SSIS packages manually, the SSIS-generator creates those through the templates automatically. Should there be a change on the ETL-process, may it be the templates or the source system, the packages are updated via the generator (up to now this had to be done manually).

3. Integrated documentation: the user is creating a complete, totally up to date documentation of his Data Warehouse.

System Requirements

- Memory
  - Minimum: 1 GB
  - Recommended: 4 GB or more
- Operating System
  - Windows Server 2003 (R2) SP2
  - Windows Server 2008 (R2) SP2
- CPU
  - Minimum: 1,4 GHz
  - Recommended: 2,0 GHz or higher
- Software
  - Microsoft SQL Server 2008 (R2)
  - Microsoft SQL Server 2012
Features

*BIA Business Intelligence Accelerator* is a set of modules, which allow the generation of Microsoft SQL Server Integration Services packages from predefined templates. For that purpose metadata (information on data schemes in particular) has to be imported from all systems which are involved in the ETL processes (source or destination systems). *BIA Business Intelligence Accelerator* provides a set of widely-used ETL templates which can be dynamically extended by user defined templates.

![BIA Business Intelligence Accelerator - Architecture](image)

*Fig. 1: BIA Business Intelligence Accelerator - Architecture*
Manage Metadata

The module Manage Metadata provides the possibility to import and edit metadata from various data providers. Currently BIA Business Intelligence Accelerator supports Microsoft SQL Server, SAP\(^1\) und Flatfiles – the list of supported providers is continuously extended (currently support of IBM DB2 and Oracle Database is in process).

\[\text{Fig. 2: Manage Metadata - Screenshot}\]

\(^1\) Separate license from Theobald Software GmbH is necessary
Manage Templates

In BIA Business Intelligence Accelerator the user can create an SSIS template from any Microsoft SSIS package. In order to archive this, the attributes which should be replaced dynamically, must be defined. (See chapter “Dynamic Statements” for more details).

Fig. 3: Manage SSIS Templates - Screenshot
Dynamic Statements
The basic concept of BIA Business Intelligence Accelerator is the dynamic statement approach. Dynamic statements allow the definition of statements like “select all non-primary key-columns of a source table and assign them to the non-primary key-columns of a destination table by means of a predefined mapping”. Later in the text you can find some concrete examples.

![Fig. 4: Manage dynamic Statements – Screenshot](image)
Example (Dataflow between SQL Server databases)
In the following some examples are provided to show how Dynamic Statements are used in BIA Business Intelligence Accelerator. The following entities shall be used:

<table>
<thead>
<tr>
<th>Source (Database-name: L1)</th>
<th>Destination (Database-name: L2)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>dbo.Customer</strong></td>
<td><strong>dbo.Customer</strong></td>
</tr>
<tr>
<td>FK  CUST_ID</td>
<td>FK  CustomerID</td>
</tr>
<tr>
<td>varchar(12)</td>
<td>varchar(12)</td>
</tr>
<tr>
<td>CUSTOM_NAME</td>
<td>CustomerName</td>
</tr>
<tr>
<td>nvarchar(80)</td>
<td>nvarchar(80)</td>
</tr>
<tr>
<td>ADD_CITY</td>
<td>AdressCity</td>
</tr>
<tr>
<td>nvarchar(80)</td>
<td>nvarchar(80)</td>
</tr>
<tr>
<td>ADD_STR</td>
<td>AdressStreet</td>
</tr>
<tr>
<td>nvarchar(80)</td>
<td>nvarchar(80)</td>
</tr>
<tr>
<td>ADD_ZIP</td>
<td>ZIPCode</td>
</tr>
<tr>
<td>nvarchar(12)</td>
<td>nvarchar(50)</td>
</tr>
<tr>
<td>ADD_CTRY</td>
<td>Country</td>
</tr>
<tr>
<td>nvarchar(80)</td>
<td>nvarchar(80)</td>
</tr>
</tbody>
</table>

**Mapping**

<table>
<thead>
<tr>
<th>CUST_ID</th>
<th>CustomerID</th>
</tr>
</thead>
<tbody>
<tr>
<td>CUST_NAME</td>
<td>CustomerName</td>
</tr>
<tr>
<td>ADD_CITY</td>
<td>AdressCity</td>
</tr>
<tr>
<td>ADD_STR</td>
<td>AdressStreet</td>
</tr>
<tr>
<td>ADD_ZIP</td>
<td>ZIPCode</td>
</tr>
<tr>
<td>ADD_CTRY</td>
<td>Country</td>
</tr>
</tbody>
</table>

**Example 1:**

*Input: SELECT {SC} FROM {ST} --Repeat = No*

Details: {ST} = {SourceTable} ➔ [Customer]
Details: {SC} = {SourceColumn} ➔ CUST_ID

*Output: SELECT CUST_ID FROM [Customer]*

**Example 2:**

*Input: UPDATE {Destination} SET {Columns}*

--Repeat = Yes; Filter = DestinationColumn.IsPrimaryKey = 0; Delimiter = ,
Details: {Destination} = {DestinationSchema} + '.' + {DestinationTable} ➔ L2.dbo.Customer
Details: {Columns} = {DestinationColumn} + ' = 'n/a' ➔ CUST_ID

*Output: UPDATE L2.dbo.Customer SET CUST_NAME = 'n/a', ADD_CITY = 'n/a', ADD_STR = 'n/a', ADD_ZIP = 'n/a', ADD_CTRY = 'n/a'*
SSIS Generator
Before generating packages the user has to specify all relevant source-destination mappings and select the template which should be used. After having completed this, the SSIS generator can create the particular packages.

Fig. 5: Manage Relations / Generate Packages – Screenshot
**Documentation**

*BIA Business Intelligence Accelerator* offers the possibility to generate various reports from stored (meta) data. The below figure shows a report on a package called „BrokerExposures.dtsx“, where one can find a list of dynamic statement values and source destination mappings of the ETL process. This guarantees that the ETL processes managed with *BIA Business Intelligence Accelerator* always are well documented.

![Fig. 6: SSIS-Packages Report](image-url)
Miscellaneous

License
*BIA Business Intelligence Accelerator* is licensed per user. This means our customers are able to gain one standard licence for each single user. Alternatively it is possible to use an enterprise licence for unlimited users in one location.

If SAP integration is desired, separate licenses von Theobald Software GmbH are necessary.

Maintenance
As long as a service contract is valid, we guarantee that *BIA Business Intelligence Accelerator* will run without defects, as described in the hand-book. Should you experience any difficulties during operation, trouble-shooting via email is available. Service contracts are valid for a year and have to be extended, when this year is up.

When the service contract is not renewed the customer will lose the right for updates.

Test Version
A 14 days test-licence for the professional edition of *BIA Business Intelligence Accelerator* is available. Just complete the order-form on [www.biaccelerator.com](http://www.biaccelerator.com) and you will get a link for the download. This is free of charge and non committal.

Online Demo
Book an online-meeting on [www.biaccelerator.com](http://www.biaccelerator.com) in which you will receive a free non committal presentation of the *BIA Business Intelligence Accelerator* and its flexibility, where we happily discuss any technical and commercial matters personally with you.

Do not hesitate to contact us in case of any questions by writing an email to support@biaccelerator.com or look at [www.biaccelerator.com](http://www.biaccelerator.com).