



## The Guide

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## About Data Academy

Data Academy began life in 2000 and right from the start, it was a product written **by** data warehouse developers **for** data warehouse developers. As data warehousing professionals, we understood the need for a toolset which reflected the reality of our day-to-day business; and although the product has grown significantly since then, we have never lost touch with life in the trenches.

Data Academy is a data warehouse builder which leverages the functionality of Microsoft SQL Server 2005.

It builds robust, reliable and expandable data warehouses and data marts in a fraction of the time it takes when using conventional native SQL.

Data Academy is a powerful application with an intuitive .NET web-based interface and a full administrative console.

Data warehouses built using Data Academy are built to standards encouraged through the Data Academy development interface, a transparent tool that is readily maintainable by trained Data Academy data warehouse development technicians. This reduces the dependency on individuals involved in the original development.

Additional functionality is achieved through the use of simple to use yet sophisticated modules that provide data validation, schema creation, data transformations with a business rule repository, warehouse process orchestration, OLAP Server cubes creation and more.

The resulting SQL Server objects constitute the basis of a structured and effective data warehouse.

These objects can then be left in their generated state or customized using the relevant reporting or visualization tools.

## Product Features

Data Academy is a browser-based data warehousing framework developed for SQL 2005 using Microsoft .NET.

Here are some of Data Academy key features:

### Ease of Use

- Doesn't require any client side components to be installed.
- Allows easy changes and design corrections to your data warehouse.
- Lets you expand or fine-tune existing data warehouses.
- Has a centralized administration audit and error logging interface for each module.
- Has a user configuration facility that allows each user to access relevant areas of data for their role.

### Flexibility

- Handles rogue data flexibly with the ability to hold back **only the bad data** in a staging area or quarantine **everything** in the load.
- Allows UDF-based field-level transformations.
- Can integrate existing SSIS packages in your data warehouse.
- Lets you import/export individual module instances.

### Power

- Supports incremental data load, including deletes.
- Has an auto-correct facility to correct the data in the staging area.
- Has transform, pivot and un-pivot engines supporting flexible output options (such as grouping, aggregation and summarization).
- Allows field mapping.
- Creates star schemas and constellation schemas.
- Handles slowly changing dimensions in star schemas.
- Handles inferred (missing) members in star schemas.
- Generates SQL Server Analysis Services (OLAP Server) cubes.
- Supports multi-dimensional hierarchies (e.g. City >> County/State >> Country).
- Lets you assign dependencies between output objects to create a sequence in which data loaders, transformations and cubes can be run.
- Has a data warehouse SQL business rules repository.
- Allows critical information to be distributed to decision makers.
- Supports grouping and summarizing (within TRANSFORM-it and STAR-it modules).
- Supports table indexing (within LOAD-it and TRANSFORM-it modules).

## Core Modules

Data Academy consists of several core modules and each module performs a specific task during the construction of your data warehouse.

The full retail version consists of the following modules: LOAD-it, JAIL-it, TRANSFORM-it, STAR-it, CUBE-it, GOVERN-it, ORCHESTRATE-it, TRANS-it and SNAPSHOT-it.

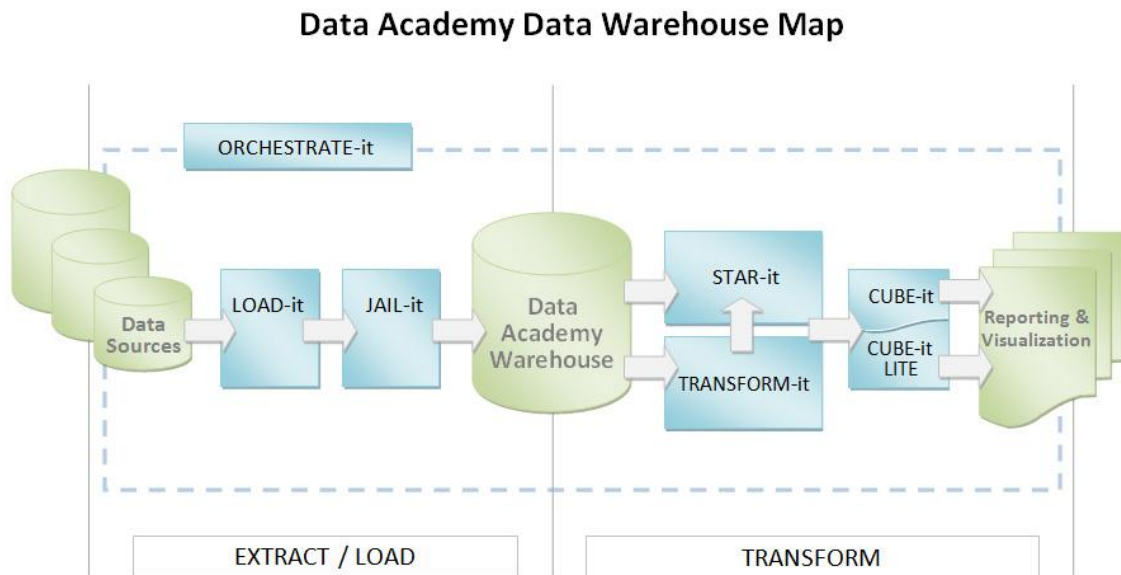


Figure 1 - Data Academy Data Warehouse Map

### LOAD-it

**Load data from any relational\* or flat-file data source**

Simply select your data sources and let Data Academy automatically discover the tables and columns to import, including data types and primary keys. To import only the data which has changed since the last load, just identify the “Last Updated Date” in each source table and let Data Academy do the heavy coding required to support incremental loads.

Data source types include SQL Server (all versions), ORACLE, Text, MS Access (all versions) and ODBC.

Once you have configured your import, Data Academy will build the entire infrastructure - staging and import tables and an SSIS package with step-by-step logging. You can even open the SSIS package in BIDS to add your own customizations to the import process.

\* Level 3 ODBC compliance required.

## JAIL-it

### **Validate your data for technical, relational and “business rules” integrity**

In the world of data warehousing, rogue data is a fact of life - out-of-scope data items, missing foreign keys and even simple data entry typos can be big problems when they are affecting the “bottom line” of your reports.

By enabling JAIL-it, Data Academy provides a simple and straightforward means of identifying these issues before the data gets into your data warehouse. Use the rule-builder to establish your validation criteria and have Data Academy automatically hold the bad data back when your data loader runs.

Once failures are identified, the individual data rows are held in the “data jail” where you can fix them ready to re-import. Additionally, you can build auto-correct rules to ensure that the same problem doesn’t recur the next time the loader is run.

## TRANSFORM-it

### **Pre-build the calculations, groupings, pivots and un-pivots that you need in your output**

To get the best performance out of your reporting and visualization tools, you are going to need to pre-build some of your “views” as “Datasets”. Data Academy makes this really easy, by providing all the tools you need via one "point and click" interface, so you no longer find yourself picking through 300-line “SELECT” clauses.

Using “un-pivot”, you can re-normalize previously pivoted data while our “pivot” operator (unlike the one built into SQL Server 2005) will automatically add columns when required to your output. A full range of “incremental” options are also supported to enhance run-time performance.

## STAR-it

### **Build industry standard Star Schemas, including support for Slowly Changing Dimensions**

Star Schemas are a great way to organize your data for reporting, especially if you are going to be using OLAP. A Star Schema incorporates a central “fact” table and any number of linked “dimensions” which relate to those “facts”. Data Academy helps you build Star Schemas quickly using our straightforward “point-and-click” interface.

Identifying a Slowly Changing Dimension, which records historical changes in your data, is simply a matter of ticking a check-box. Data Academy also supports “missing members” which are automatically default filled and completed when they become available, and date analysis by fiscal or calendar year.

## CUBE-it

### OLAP Analysis Services Cubes made accessible for SQL developers

Moving from a relational data source to a multi-dimensional OLAP cube can be a challenge. Data Academy offers two simple “point and click” options to get it right first time:

- CUBE-it LITE provides a really easy way to build and process a cube, by simply identifying facts and dimensions in a “flattened” relational dataset.
- CUBE-it gives you the power to build sophisticated “Cube Spaces” with shared dimensions, calculations, KPIs, and enhanced aggregations not available “out of the box” in Microsoft SQL Server Analysis Services.

## GOVERN-it

### A business rules repository for your data warehouse

- Tracks changes to the definition of ANY object in your data warehouse.
- Documents programmatic objects such as Views, User Defined Functions and Stored Procedures.
- Encourages business rule re-use with a either lightweight client tool sitting on the developer's desktop, or through touch points within the Data Academy development interface that allows the developer to search and re-use documented business rules.
- Imports and exports programmatic objects via TRANS-it.

## ORCHESTRATE-it

### Visually design your warehouse's daily build sequence

Once you have designed your loads, transformations and cubes, you will want to combine them all into a nightly or weekly build.

ORCHESTRATE-it allows you to identify the dependencies of each object, building a sequence in which data loaders, transformations and cubes can be run. You can even include custom steps such as your own SSIS packages or SQL Stored Procedures. Data Academy will then construct a single, fully logged SSIS package, which you can schedule using the SQL Agent or your own enterprise scheduler.

## TRANS-it

### Move individual Data Academy objects from “dev” to “live”

Best practice suggests having separate “development”, “test” and “live” servers for your data warehouse. TRANS-it makes it easy to move an individual object, such as a Data Loader or a Transformation Space, between these different environments, changing key parameters (such as server names and passwords) along the way. You can even script your entire release and deployment process using Microsoft Visual Basic .NET for ultimate flexibility.

- Export and import any Data Academy object - Data Loaders, Transformation Spaces, Star Spaces and Cube Spaces.
- Output a standard Windows file, which you can copy over the network, burn to CD, e-mail, etc...
- Share modules with colleagues anytime, anywhere.
- Export and import Views, User Defined Functions and Stored Procedures in conjunction with GOVERN-it.
- Amend key parameters (server names, passwords, etc...) at any point in the process.
- Full programmatic .NET API - script your release in VB.NET or C#.

## SNAPSHOT-it

### Provide detailed trending and archiving

A recurrent problem in the field of data warehousing is how to handle "moving" data. A summary dataset which outputs a series of totals will change from day to day, leaving no record of where the values stood from a historic perspective. SNAPSHOT-it offers a solution to this issue.

Based on a TRANSFORM-it Transformation Space, SNAPSHOT-it will take periodic dated copies of your data, allowing you to build up a trended output of changing values over time.

Alternatively, it can simply be used to retain a historic archive of your data for those situations where you don't require the extra complexity offered by Slowly Changing Dimensions in STAR-it.

The module is fully configurable and can be easily scheduled via an integrated interface.

## Optional Modules and Companion Products

Optional modules and companion products for Data Academy are also available:

- Optional module: TRACK-it.
- Companion products: Data Academy Score Card, Data Academy File Keeper and Data Academy Form Builder.

### TRACK-it

Provides a complete auditing capability for all or some of the data in your data warehouse

When data is changing, you may need to know who is changing it, when they changed it, and what changes were made - for information, for compliance, or even just for your own piece of mind.

- Record the date, time and user when data is changed.
- Record inserts, updates and deletes providing before and after images of the tracked data.
- Track whole tables or just selected fields.
- Exclude "system" users from tracking.

### Data Academy Score Card

A comprehensive reporting and analysis product that monitors and manages Key Performance Indicators (KPIs). It gathers enterprise data from multiple disparate sources into a fully configurable score card providing target versus actual values.

It facilitates the management of actions, events and business areas to help meet overall business objectives by providing "Traffic Lighting" alerts against KPIs.

All the information is presented through a web browser interface in an intuitive layout making it easy to share information across an entire organization.

It handles multiple score card capability, track period-to-date and year-to-date, full analysis and drill through and offers multiple security settings.

## Data Academy File Keeper

Data Academy File Keeper provides a facility for the logical filing and storing of residual unstructured data from your data warehouse build.

Files are organized in a folder tree, similar to the way you might use a shared network drive in Windows. Security is implemented at either the folder or individual file level via Data Academy Business Units, to which rights can be assigned or revoked at any time.

To add an additional degree of structure, files can be associated with specific data items (parent records) in your data warehouse. Used in conjunction with Data Academy Form Builder, this provides the capability to upload scanned documents such as letters or contracts and link them to individual records in a particular table.

Data Academy File Keeper is an "add-on" product, which can be used "stand alone" or with the Data Academy data warehouse.

## Data Academy Form Builder

As you develop your data warehouse, you may well come across scenarios where you need to edit or enter data manually.

Data Academy Form Builder allows you to extend your Data Academy data warehouse with fully functional, customized web forms, which allow you to add, delete and make changes to the data in your data warehouse.

Data Academy Form Builder is an add-in for Visual Studio 2008, which generates ASP.NET web forms, which are fully integrated with the rest of your data warehouse environment, providing a platform for login, control-based security, data input validation and user interface consistency - including aspects such as grid search/sort functionality and parent-child data relationships.

Using Data Academy Form Builder is simply a question of pointing it at a data table, and clicking "Generate". A typical output might be a pair of "list-drill" forms, with the basic functionality to select, add, edit and delete items from your data. With all the intelligent defaults provided by Data Academy, this may be literally all you need to do! But further customization is only a click away, allowing you to define foreign key relationships which feed through into UI controls as drop-down lists, to customize titles and labels and even to generate the output as ASP.NET Web Controls (.ascx) which you can drop into other pages. All of these outputs are based on Data Academy's own tried, tested and trusted framework, which also powers the Data Academy User Interface which you use every day!

Finally, because all of the output consists of standard ASP.NET forms and objects, coded in VB.NET, you even have the ability to actually debug and extend them manually, which means there is nothing you can't do.

## About Insource

A Microsoft Gold Partner founded in 1994, Insource transforms performance through Business Intelligence, Data Warehousing and Reporting solutions.

Through the effective combination of our software products, proven implementation processes and knowledge transfer we obtain a clear understanding of your organization's business goals and then provide an end-to-end and/or modular DM and BI solutions.

Partnering with Insource delivers stability, resilience and consistency to bring confidence to your business processes whilst lowering the cost of your information management strategy from deployment through the entire lifecycle.

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