Integration Services Transformations

**SQL Server 2008 R2**

[Other Versions](javascript:;)

SQL Server Integration Services transformations are the components in the data flow of a package that aggregate, merge, distribute, and modify data. Transformations can also perform lookup operations and generate sample datasets. This section describes the transformations that Integration Services includes and explains how they work.

[Business Intelligence Transformations](javascript:void(0))

The following transformations perform business intelligence operations such as cleaning data, mining text, and running data mining prediction queries.

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| **Transformation** | **Description** |
| [Slowly Changing Dimension Transformation](https://technet.microsoft.com/en-us/library/ms141715(v=sql.105).aspx) | The transformation that configures the updating of a slowly changing  dimension. |
| [Fuzzy Grouping Transformation](https://technet.microsoft.com/en-us/library/ms141764(v=sql.105).aspx) | The transformation that standardizes values in column data. |
| [Fuzzy Lookup Transformation](https://technet.microsoft.com/en-us/library/ms137786(v=sql.105).aspx) | The transformation that looks up values in a reference table using a  fuzzy match. |
| [Term Extraction Transformation](https://technet.microsoft.com/en-us/library/ms141809(v=sql.105).aspx) | The transformation that extracts terms from text. |
| [Term Lookup Transformation](https://technet.microsoft.com/en-us/library/ms137850(v=sql.105).aspx) | The transformation that looks up terms in a reference table and counts terms extracted from text. |
| [Data Mining Query Transformation](https://technet.microsoft.com/en-us/library/ms140358(v=sql.105).aspx) | The transformation that runs data mining prediction queries. |

[Row Transformations](javascript:void(0))

The following transformations update column values and create new columns. The transformation is applied to each row in the transformation input.

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| **Transformation** | **Description** |
| [Character Map Transformation](https://technet.microsoft.com/en-us/library/ms141694(v=sql.105).aspx) | The transformation that applies string functions to character data. |
| [Copy Column Transformation](https://technet.microsoft.com/en-us/library/ms137741(v=sql.105).aspx) | The transformation that adds copies of input columns to the transformation  output. |
| [Data Conversion Transformation](https://technet.microsoft.com/en-us/library/ms141706(v=sql.105).aspx) | The transformation that converts the data type of a column to a different  data type. |
| [Derived Column Transformation](https://technet.microsoft.com/en-us/library/ms141069(v=sql.105).aspx) | The transformation that populates columns with the results of expressions. |
| [Export Column Transformation](https://technet.microsoft.com/en-us/library/ms139818(v=sql.105).aspx) | The transformation that inserts data from a data flow into a file. |
| [Import Column Transformation](https://technet.microsoft.com/en-us/library/ms141262(v=sql.105).aspx) | The transformation that reads data from a file and adds it to a data flow. |
| [Script Component](https://technet.microsoft.com/en-us/library/ms137640(v=sql.105).aspx) | The transformation that uses script to extract, transform, or load data. |
| [OLE DB Command Transformation](https://technet.microsoft.com/en-us/library/ms141138(v=sql.105).aspx) | The transformation that runs SQL commands for each row in a data flow. |

[Rowset Transformations](javascript:void(0))

The following transformations create new rowsets. The rowset can include aggregate and sorted values, sample rowsets, or pivoted and unpivoted rowsets.

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| **Transformation** | **Description** |
| [Aggregate Transformation](https://technet.microsoft.com/en-us/library/ms138031(v=sql.105).aspx) | The transformation that performs aggregations such as AVERAGE, SUM, and COUNT. |
| [Sort Transformation](https://technet.microsoft.com/en-us/library/ms140182(v=sql.105).aspx) | The transformation that sorts data. |
| [Percentage Sampling Transformation](https://technet.microsoft.com/en-us/library/ms139864(v=sql.105).aspx) | The transformation that creates a sample data set using a percentage to specify  the sample size. |
| [Row Sampling Transformation](https://technet.microsoft.com/en-us/library/ms141200(v=sql.105).aspx) | The transformation that creates a sample data set by specifying the number  of rows in the sample. |
| [Pivot Transformation](https://technet.microsoft.com/en-us/library/ms140308(v=sql.105).aspx) | The transformation that creates a less normalized version of a normalized table. |
| [Unpivot Transformation](https://technet.microsoft.com/en-us/library/ms141723(v=sql.105).aspx) | The transformation that creates a more normalized version of a  nonnormalized table. |

[Split and Join Transformations](javascript:void(0))

The following transformations distribute rows to different outputs, create copies of the transformation inputs, join multiple inputs into one output, and perform lookup operations.

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| **Transformation** | **Description** |
| [Conditional Split Transformation](https://technet.microsoft.com/en-us/library/ms137886(v=sql.105).aspx) | The transformation that routes data rows to different outputs. |
| [Multicast Transformation](https://technet.microsoft.com/en-us/library/ms137701(v=sql.105).aspx) | The transformation that distributes data sets to multiple outputs. |
| [Union All Transformation](https://technet.microsoft.com/en-us/library/ms141020(v=sql.105).aspx) | The transformation that merges multiple data sets. |
| [Merge Transformation](https://technet.microsoft.com/en-us/library/ms141703(v=sql.105).aspx) | The transformation that merges two sorted data sets. |
| [Merge Join Transformation](https://technet.microsoft.com/en-us/library/ms141775(v=sql.105).aspx) | The transformation that joins two data sets using a FULL, LEFT, or INNER join. |
| [Lookup Transformation](https://technet.microsoft.com/en-us/library/ms141821(v=sql.105).aspx) | The transformation that looks up values in a reference table using an exact match. |
| [Cache Transform](https://technet.microsoft.com/en-us/library/bb895264(v=sql.105).aspx) | The transformation that writes data from a connected data source in the data flow to a Cache connection manager that saves the data to a cache file. The Lookup transformation performs lookups on the data in the cache file. |

[Auditing Transformations](javascript:void(0))

Integration Services includes the following transformations to add audit information and count rows.

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| **Transformation** | **Description** |
| [Audit Transformation](https://technet.microsoft.com/en-us/library/ms141150(v=sql.105).aspx) | The transformation that makes information about the environment available to the data  flow in a package. |
| [Row Count Transformation](https://technet.microsoft.com/en-us/library/ms141136(v=sql.105).aspx) | The transformation that counts rows as they move through it and stores the final count  in a variable. |

[Transformations Available for Download](javascript:void(0))

The following table lists transformations that you can download from the Microsoft Web site.

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| **Description** | **Download** |
| The Balanced Data Distributor takes a single input and distributes the incoming rows to one or more outputs uniformly via multithreading. | The Balanced Data Distributor transformation is  available for download at  [Microsoft SQL Server Integration Services Balanced Data Distributor](http://go.microsoft.com/fwlink/?LinkId=226279). |

[Custom Transformations](javascript:void(0))

You can also write custom transformations. For more information, see [Developing a Custom Transformation Component with Synchronous Outputs](https://technet.microsoft.com/en-us/library/ms136027(v=sql.105).aspx) and [Developing a Custom Transformation Component with Asynchronous Outputs](https://technet.microsoft.com/en-us/library/ms135931(v=sql.105).aspx).

[External Resources](javascript:void(0))

* Video, [Balanced Data Distributor](http://go.microsoft.com/fwlink/?LinkID=226278), on Technet.microsoft.com