IBM InfoSphere DataStage and QualityStage
Version 9 Release 1

Connectivity Guide for IBM Red Brick Warehouse

IBM
Note

Before using this information and the product that it supports, read the information in "Notices and trademarks" on page [19].
# Contents

**Chapter 1. Introduction** ........................................ 1  
   Audience .......................................................... 1  
   Introduction to the Red Brick Load Stage .................. 1  
   Configuring the Environment ................................. 1  
   Red Brick Load and the Parallel Canvas .................. 1  
      Mapping String Data ........................................ 1  

**Chapter 2. Red Brick Load Stages** .............................. 3  
   Functionality .................................................... 3  
   Terminology ..................................................... 3  
   Mode of Operation .............................................. 4  
      Control Files ................................................. 4  
   Loading a Red Brick Warehouse ............................. 5  
   Input Properties ................................................ 5  

**Appendix A. Product accessibility** ............................ 9  

**Appendix B. Reading command-line syntax** ................. 11  

**Appendix C. How to read syntax diagrams** .................. 13  

**Appendix D. Contacting IBM** .................................. 15  

**Appendix E. Accessing and providing feedback on the product documentation** .................. 17  

**Notices and trademarks** ....................................... 19  

**Index** .................................................................. 23
Chapter 1. Introduction

InfoSphere® DataStage® provides the ability to load tables in Red Brick warehouses in bulk. These topics provide an introduction to the Red Brick Load stage as well as installation instructions and configuration information.

Audience

This guide is intended for InfoSphere DataStage designers who create or modify jobs that use the Red Brick Load stage.

Introduction to the Red Brick Load Stage

Red Brick Load enables you to rapidly and efficiently prepare and load streams of tabular data from any InfoSphere DataStage stage (for example, the ODBC stage, the Sequential File stage, and so forth) into tables of the target Red Brick Warehouse.

Red Brick Load is a passive stage that supports one or more stream input links (but no output links). Each input link corresponds to a different bulk loading session within an InfoSphere DataStage job.

Bulk loading can occur automatically only if both the InfoSphere DataStage job and Red Brick server are on the same physical machine.

Configuring the Environment

There is no requirement for special environment variables in support of the Red Brick Load stage.

Red Brick Load and the Parallel Canvas

Red Brick Load stages can run on the Parallel Canvas. The default for all stages is Sequential. "In Parallel" mean you can set it to run in parallel, but this is not the default. Table 1 provides detailed information.

Table 1. Availability on the Parallel Canvas

<table>
<thead>
<tr>
<th>Connectivity Stage</th>
<th>Available on the Parallel Canvas in Windows</th>
<th>Available on the Parallel Canvas in UNIX</th>
<th>Used as a Source or a Target or for Processing</th>
<th>Runs Sequentially or In Parallel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Brick Load</td>
<td>Yes</td>
<td>Target</td>
<td>Sequential</td>
<td></td>
</tr>
</tbody>
</table>

Mapping String Data

About this task

The purpose of the NONE map on the Server canvas is to turn off mapping of string data in any stage in which the map is set, that is, to pass the data through verbatim. This feature is handled differently on the Parallel Canvas. When you define string data (char, varchar, and so on), there is an additional field in the stage’s Columns grid called Extended. This can be set to blank or Unicode. If this
option is set to blank, no mapping occurs (that is, "NONE"); the map specified on
the NLS tab is ignored. If this option is set to Unicode, the NLS map is applied. In
order to read or write Japanese data, for example, set Extended to Unicode. When
the job compiler detects this combination (char, varchar, and so on, and Unicode),
it generates the appropriate run-time code.
Chapter 2. Red Brick Load Stages

This topic describes the following:

Functionality

Red Brick Load has the following functionality:

- Support for data files that exceed the 2-GB file size limit for 64-bit file systems.
- Generation and automatic execution of Red Brick commands to load data into the Red Brick Warehouse.
- Generation of intermediate data files in delimiter-separated ASCII format.
- An option to drop and create simple target tables as defined in the column information of the corresponding link (for example, tables that have no referential constraints, triggers, or stored procedures).
- An option to generate the data and script files only for manual execution.
- An option to let you specify commands to run the BeforeCommand and the AfterCommand, for example, to initialize the database.
- Support of NLS (National Language Support).

The following functionality is not supported:

- Complex TMU or RISQL scripts (you can create these using any text editor, such as WordPad, Notepad, and so on)
- Binary data types
- Generation of fixed-record format for data files

Terminology

The following table explains the Red Brick terms used in this document

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulk Load Plug-in</td>
<td>A passive stage whose role in a DataStage job is to take streams of tabular data and load them into tables of a target database.</td>
</tr>
<tr>
<td>control file</td>
<td>A file of commands that bulk loads a table from a single link. The control file acts as an input file to the TMU utility. See &quot;Input Properties&quot; for details.</td>
</tr>
<tr>
<td>data file</td>
<td>An ASCII file of row/column data from an input link that is to be loaded.</td>
</tr>
<tr>
<td>RISQL</td>
<td>An SQL entry tool with a set of business analysis extensions to SQL for warehouse databases.</td>
</tr>
<tr>
<td>SQL file</td>
<td>An input file to RISQL, consisting of standard SQL or RISQL extension statements.</td>
</tr>
</tbody>
</table>
Table 2. Terminology in this Book (continued)

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TMU</td>
<td>The Table Management Utility that loads data into the Red Brick Warehouse and maintains the tables, indexes, and referential integrity.</td>
</tr>
</tbody>
</table>

**Mode of Operation**

Red Brick Load has two modes of operation:

- **Automatic Mode.** The stage executes the table creation command, the Before Command, the data loading command, the After Command, and the command for removing intermediate data files.
- **Manual Mode.** If you set **Load Automatically** to **N**, the stage stores the commands in a batch file without executing them. You can run the batch file later to execute the commands.

Red Brick Load generates intermediate data files, the TMU control file, the SQL file for table creation, and a batch file. The batch file, stored in the control file directory, contains the BeforeCommand, the AfterCommand, the RISQL command for table creation, the TMU command for data loading, and the Windows command for intermediate data file removal, if applicable.

**Note:** You must run the batch file from the project directory if the directories entered contain relative pathnames.

**Control Files**

The Red Brick Load stage can generate up to nine files per link, including the following:

- A control file for data loading if no CustomCntlFile is entered
- An SQL file for table creation
- An intermediate data file to store data from the (input) link
- A batch file to store the spawn commands
- A log file for each of the spawn commands if applicable: table creation, BeforeCommand, data loading, AfterCommand, and removal of the intermediate data file

The following table lists the file name used if a custom control file is entered, the default file name used if no custom control file is entered, and the description for the file:

*Table 3. Naming Conventions and Descriptions of Control Files*

<table>
<thead>
<tr>
<th>File Name (CustomCntlFile)</th>
<th>File Name (No CustomCntlFile)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CustomCntlFile.tmu</td>
<td>database_table.tmu</td>
<td>Control file for data loading</td>
</tr>
<tr>
<td>CustomCntlFile.sql</td>
<td>database_table.sql</td>
<td>SQL file for table creation</td>
</tr>
<tr>
<td>CustomCntlFile.dat</td>
<td>database_table.dat</td>
<td>Data file to store data from the input link</td>
</tr>
<tr>
<td>File Name (CustomCntlFile)</td>
<td>File Name (No CustomCntlFile)</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-----------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>CustomCntlFile_table.bat</td>
<td>database_table.bat</td>
<td>Batch file to store the spawn commands</td>
</tr>
<tr>
<td>CustomCntlFile_create.log</td>
<td>database_table_create.log</td>
<td>Log file for table creation</td>
</tr>
<tr>
<td>CustomCntlFile_load.log</td>
<td>database_table_load.log</td>
<td>Log file for data loading</td>
</tr>
<tr>
<td>CustomCntlFile_remove.log</td>
<td>database_table_remove.log</td>
<td>Log file for the removal of the intermediate data file</td>
</tr>
</tbody>
</table>

**Loading a Red Brick Warehouse**

**About this task**

Using the IBM® InfoSphere DataStage Designer,

**Procedure**

1. Add a Red Brick Load stage to your InfoSphere DataStage job
2. Link the Red Brick stage to its data source
3. Specify column definitions using the **Columns** tab
4. Determine the appropriate load mode, as documented in "Mode of Operation"
5. Add the appropriate property values on the **Inputs** tab, as documented in "Input Properties"
6. Compile the job
7. If the job compiles correctly, you can choose one of the following:
   - Run the job from within Designer
   - Run or schedule the job using the InfoSphere DataStage Director
8. If the job does not compile correctly, correct the errors and recompile

**Input Properties**

Use the **General** tab to specify the load operation.

RedBrick Load supports the following input properties that are visible from the IBM InfoSphere DataStage Designer. The following table includes these column heads:

- **Property** is the text that the job designer sees in the stage editor user interface.
- **Default** is the text used if the job designer does not supply any value.
- **Help Text** describes the properties.

<table>
<thead>
<tr>
<th>Property</th>
<th>Default</th>
<th>Help Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>Database Name</td>
<td>None</td>
<td>(Required) Database name.</td>
</tr>
<tr>
<td>User ID</td>
<td>None</td>
<td>Name used to connect to the Red Brick® database.</td>
</tr>
<tr>
<td>Property</td>
<td>Default</td>
<td>Help Text</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>---------</td>
<td>-----------</td>
</tr>
<tr>
<td>Password</td>
<td>None</td>
<td>Password for the database.</td>
</tr>
<tr>
<td>TableName</td>
<td>None</td>
<td>Name of the Red Brick database table to be loaded. (Required if Custom Control File Name is not specified.)</td>
</tr>
<tr>
<td>Create a new table?</td>
<td>Y</td>
<td>Y=Yes, N=No. Creates the table, using the column definitions for the link.</td>
</tr>
<tr>
<td>TMU Mode</td>
<td>insert</td>
<td>Valid values for operation of the InfoSphere DataStageManager: append, replace, modify, update, and insert.</td>
</tr>
<tr>
<td>Delimiter</td>
<td></td>
<td>Field delimiter character used to separate columns in the intermediate data file.</td>
</tr>
<tr>
<td>Stop loading after a number of discarded rows</td>
<td>1</td>
<td>Number (0 or more) of discarded rows after which to stop loading.</td>
</tr>
<tr>
<td>Custom Control File Name</td>
<td>None</td>
<td>Name of the custom control file. Otherwise, defaults to the generated control file named <code>database_table.tmu</code>.</td>
</tr>
<tr>
<td>Before Command</td>
<td>None</td>
<td>Windows commands executed before table creation and loading.</td>
</tr>
<tr>
<td>After Command</td>
<td>None</td>
<td>Windows commands executed after table creation and loading.</td>
</tr>
<tr>
<td>Remove intermediate data file</td>
<td>Y</td>
<td>Y=Yes, N=No. Y removes the intermediate data file after the stage executes the appropriate After Command.</td>
</tr>
<tr>
<td>Data File Directory</td>
<td>None</td>
<td>Name of the directory containing the intermediate data files that store data from the input link. Otherwise, defaults to the name of the directory for the InfoSphere DataStage project.</td>
</tr>
<tr>
<td>Control File Directory</td>
<td>None</td>
<td>Name of the directory containing the custom control files that load data, create tables, and so forth. Otherwise, defaults to the name of the directory for the InfoSphere DataStage project.</td>
</tr>
<tr>
<td>Property</td>
<td>Default</td>
<td>Help Text</td>
</tr>
<tr>
<td>----------------------</td>
<td>---------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Log File Directory</td>
<td>None</td>
<td>Name of the directory containing logs files with information about table creation, Before Command, data loading, After Command, or removal of the intermediate data file. Otherwise, defaults to the name of the directory for the InfoSphere DataStage project.</td>
</tr>
<tr>
<td>Discard File Directory</td>
<td>None</td>
<td>Name of the directory containing the rows that are not loaded by the TMU. Otherwise, defaults to the name of the directory for the InfoSphere DataStage project.</td>
</tr>
<tr>
<td>Load Automatically</td>
<td>Y</td>
<td>Y=Yes, N=No. If N is entered, the stage only prepares the intermediate data file and the script files. You can later load the data by running the batch file stored in the control file directory. You must run this batch file from the project directory if the specified directories, such as CntlDirectory and LogDirectory, do not use an absolute path.</td>
</tr>
</tbody>
</table>
Appendix A. Product accessibility

You can get information about the accessibility status of IBM products.

The IBM InfoSphere Information Server product modules and user interfaces are not fully accessible. The installation program installs the following product modules and components:
- IBM InfoSphere Business Glossary
- IBM InfoSphere Business Glossary Anywhere
- IBM InfoSphere DataStage
- IBM InfoSphere FastTrack
- IBM InfoSphere Information Analyzer
- IBM InfoSphere Information Services Director
- IBM InfoSphere Metadata Workbench
- IBM InfoSphere QualityStage®

For information about the accessibility status of IBM products, see the IBM product accessibility information at [http://www.ibm.com/able/product_accessibility/index.html](http://www.ibm.com/able/product_accessibility/index.html).

**Accessible documentation**

Accessible documentation for InfoSphere Information Server products is provided in an information center. The information center presents the documentation in XHTML 1.0 format, which is viewable in most Web browsers. XHTML allows you to set display preferences in your browser. It also allows you to use screen readers and other assistive technologies to access the documentation.

The documentation that is in the information center is also provided in PDF files, which are not fully accessible.

**IBM and accessibility**

See the [IBM Human Ability and Accessibility Center](http://www.ibm.com/able) for more information about the commitment that IBM has to accessibility.
Appendix B. Reading command-line syntax

This documentation uses special characters to define the command-line syntax.

The following special characters define the command-line syntax:

[] Identifies an optional argument. Arguments that are not enclosed in brackets are required.

... Indicates that you can specify multiple values for the previous argument.

\ Indicates mutually exclusive information. You can use the argument to the left of the separator or the argument to the right of the separator. You cannot use both arguments in a single use of the command.

{} Delimits a set of mutually exclusive arguments when one of the arguments is required. If the arguments are optional, they are enclosed in brackets ([]).

Note:
- The maximum number of characters in an argument is 256.
- Enclose argument values that have embedded spaces with either single or double quotation marks.

For example:

```plaintext
wsetsrc [-S server] [-l label] [-n name] source
```

The source argument is the only required argument for the wsetsrc command. The brackets around the other arguments indicate that these arguments are optional.

```plaintext
wlsac [-l | -f format] [key...] profile
```

In this example, the -l and -f format arguments are mutually exclusive and optional. The profile argument is required. The key argument is optional. The ellipsis (...) that follows the key argument indicates that you can specify multiple key names.

```plaintext
wrb -import {rule_pack | rule_set}...
```

In this example, the rule_pack and rule_set arguments are mutually exclusive, but one of the arguments must be specified. Also, the ellipsis marks (...) indicate that you can specify multiple rule packs or rule sets.
Appendix C. How to read syntax diagrams

The following rules apply to the syntax diagrams that are used in this information:

- Read the syntax diagrams from left to right, from top to bottom, following the path of the line. The following conventions are used:
  - The >>— symbol indicates the beginning of a syntax diagram.
  - The ---> symbol indicates that the syntax diagram is continued on the next line.
  - The >— symbol indicates that a syntax diagram is continued from the previous line.
  - The --->< symbol indicates the end of a syntax diagram.
- Required items appear on the horizontal line (the main path).

- Optional items appear below the main path.

- If you can choose from two or more items, they appear vertically, in a stack. If you must choose one of the items, one item of the stack appears on the main path.

- If choosing one of the items is optional, the entire stack appears below the main path.

- If one of the items is the default, it appears above the main path, and the remaining choices are shown below.

- An arrow returning to the left, above the main line, indicates an item that can be repeated.
If the repeat arrow contains a comma, you must separate repeated items with a comma.

A repeat arrow above a stack indicates that you can repeat the items in the stack.

- Sometimes a diagram must be split into fragments. The syntax fragment is shown separately from the main syntax diagram, but the contents of the fragment should be read as if they are on the main path of the diagram.

**Fragment-name:**

- Keywords, and their minimum abbreviations if applicable, appear in uppercase. They must be spelled exactly as shown.
- Variables appear in all lowercase italic letters (for example, `column-name`). They represent user-supplied names or values.
- Separate keywords and parameters by at least one space if no intervening punctuation is shown in the diagram.
- Enter punctuation marks, parentheses, arithmetic operators, and other symbols, exactly as shown in the diagram.
- Footnotes are shown by a number in parentheses, for example (1).
Appendix D. Contacting IBM

You can contact IBM for customer support, software services, product information, and general information. You also can provide feedback to IBM about products and documentation.

The following table lists resources for customer support, software services, training, and product and solutions information.

Table 5. IBM resources

<table>
<thead>
<tr>
<th>Resource</th>
<th>Description and location</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBM Support Portal</td>
<td>You can customize support information by choosing the products and the topics that interest you at <a href="http://www.ibm.com/support/entry/portal/Software/Information_Management/InfoSphere_Information_Server">www.ibm.com/support/entry/portal/Software/Information_Management/InfoSphere_Information_Server</a></td>
</tr>
<tr>
<td>Software services</td>
<td>You can find information about software, IT, and business consulting services, on the solutions site at <a href="http://www.ibm.com/businesssolutions/">www.ibm.com/businesssolutions/</a></td>
</tr>
<tr>
<td>My IBM</td>
<td>You can manage links to IBM Web sites and information that meet your specific technical support needs by creating an account on the My IBM site at <a href="http://www.ibm.com/account/">www.ibm.com/account/</a></td>
</tr>
<tr>
<td>Training and certification</td>
<td>You can learn about technical training and education services designed for individuals, companies, and public organizations to acquire, maintain, and optimize their IT skills at <a href="http://www.ibm.com/software/sw-training/">http://www.ibm.com/software/sw-training/</a></td>
</tr>
</tbody>
</table>
Appendix E. Accessing and providing feedback on the product documentation

Documentation is provided in a variety of locations and formats, including in help that is opened directly from the product client interfaces, in a suite-wide information center, and in PDF file books.

The information center is installed as a common service with IBM InfoSphere Information Server. The information center contains help for most of the product interfaces, as well as complete documentation for all the product modules in the suite. You can open the information center from the installed product or from a Web browser.

**Accessing the information center**

You can use the following methods to open the installed information center.

- Click the **Help** link in the upper right of the client interface.

  **Note:** From IBM InfoSphere FastTrack and IBM InfoSphere Information Server Manager, the main Help item opens a local help system. Choose **Help > Open Info Center** to open the full suite information center.

- Press the F1 key. The F1 key typically opens the topic that describes the current context of the client interface.

  **Note:** The F1 key does not work in Web clients.

- Use a Web browser to access the installed information center even when you are not logged in to the product. Enter the following address in a Web browser: http://host_name:port_number/infocenter/topic/com.ibm.swg.im.iis.productization.iisinfsrv.home.doc/ic-homepage.html. The host_name is the name of the services tier computer where the information center is installed, and port_number is the port number for InfoSphere Information Server. The default port number is 9080. For example, on a Microsoft® Windows® Server computer named iisdocs2, the Web address is in the following format: http://iisdocs2:9080/infocenter/topic/com.ibm.swg.im.iis.productization.iisinfsrv.nav.doc/dochome/iisinfsrv_home.html.

A subset of the information center is also available on the IBM Web site and periodically refreshed at http://publib.boulder.ibm.com/infocenter/iisinfsv/v8r7/index.jsp.

**Obtaining PDF and hardcopy documentation**

- A subset of the PDF file books are available through the InfoSphere Information Server software installer and the distribution media. The other PDF file books are available online and can be accessed from this support document: https://www.ibm.com/support/docview.wss?uid=swg27008803&wv=1

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Index

A
  automatic mode 4, 7

C
  command-line syntax
    conventions 11
  commands
    syntax 11
  configuration requirements 1
  control files 4, 6
  customer support
    contacting 15

F
  functionality 3

G
  grid editor 5

I
  input links 1
  input properties 5
  introduction 1

L
  legal notices 19

M
  manual mode 4, 7
  mapping string data 1

P
  prerequisites 1
  product accessibility
    accessibility 9
  product documentation
    accessing 17

S
  software services
    contacting 15
  special characters
    in command-line syntax 11
  support
    customer 15
  syntax
    command-line 11

T
  terminology 3
  trademarks
    list of 19

W
  web sites
    non-IBM 13