

IBM InfoSphere DataStage and QualityStage  
Version 8 Release 7

*Connectivity Guide for iWay Servers*





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**Note**

Before using this information and the product that it supports, read the information in “Notices and trademarks” on page 17.

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## iWay enterprise stage

IBM® InfoSphere® DataStage® is a tool set for designing, developing, and running jobs that populate tables in a data warehouse or data mart. You can use the iWay enterprise stage in your parallel jobs.

The iWay enterprise stage is a connectivity stage. Using iWay enterprise stage, you can read data from an iWay server. You can use iWay middleware to access a variety of data sources. iWay middleware insulates you from the complexity of accessing certain data sources, and is often used to access data from legacy databases on Mainframe systems.

iWay enterprise stage connects to the iWay server by using the iWay 5.3 API. The stage connects to, and supports, all platforms and data sources supported by the iWay 5.3 API. The stage only reads data from data sources via iWay, and does not provide facilities for writing data to or updating data sources. The stage sets up a connection to the specified iWay server, reads data from a table and writes it to a data set. You can also use the stage for performing a lookup in a table hosted on an iWay server. The stage operates sequentially when reading or in parallel when performing a lookup.

You can access several different data sources by using the iWay middleware. Therefore, fine-tuning for reading a particular data source access is done on the iWay client, rather than the iWay enterprise stage.

**Note:** The iWay client is alternatively called the iWay connector.

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## Working with iWay enterprise stage

To edit an iWay enterprise stage, you use the stage editor. To learn about the stage editor in detail, see the *IBM InfoSphere DataStage and QualityStage Parallel Job Developer's Guide*.

To connect to an iWay server by using the iWay enterprise stage, you must have the iWay client installed on the InfoSphere DataStage and QualityStage™ server. If you have a cluster system, ensure that the iWay client is installed on the conductor node.

You can get an iWay enterprise stage functioning by performing a minimum set of steps. The steps required depend on what you are using an iWay enterprise Stage for.

### Reading a database table via iWay

#### About this task

You must specify certain information to use an iWay enterprise stage in a job. The information that you must provide depends on whether you want to write data to an iWay database or read data from an iWay database.

- In the **Properties** tab:

- Specify the read method. The default read method is table, which reads data directly from a table. You can choose to read data by using auto-generated SQL or user-generated SQL.
- Specify the table to be read.
- If you specify a read method of user-generated SQL, specify the SELECT SQL statement to use. If you specify a read method of auto-generated SQL, then you can edit the auto-generated SQL statement as required.
- If you are not using the default iWay server to connect to the data source, specify the server name you are using.
- If your iWay server is running with security mode enabled, specify the valid user name and password.
- Ensure that column metadata is specified for the read operation.

## Performing a direct lookup on a database table via iWay

### About this task

To perform a direct lookup, follow the steps below.

- Connect the iWay enterprise stage to a lookup stage by using a reference link.
- In the **Properties tab**:
  - Set the lookup type to sparse.
  - Specify the read method. The default value is Table, which reads data directly from a table. You can choose to read data by using auto-generated SQL or user-generated SQL.
  - Specify the table to read data from.
  - If you specify a read method of user-generated SQL, specify the SELECT SQL statement to use. If you specify a read method of auto-generated SQL, then you can edit the auto-generated SQL statement as required.
  - If you are not using the default iWay server to connect to the data source, specify the server name you are using.
  - If your iWay server is running with security mode enabled, specify the valid user name and password.
  - Ensure that column metadata is specified for the read operation.

## Performing an in-memory lookup on a database table via iWay

### About this task

In-memory lookup is the default lookup method in an iWay enterprise stage. The steps required for an in-memory lookup are the same as steps for a direct lookup, except in the **Properties tab**, you must set the lookup type to normal.

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## Data type conversion

When reading data, iWay enterprise stage automatically converts iWay data types to the IBM InfoSphere DataStage data types as shown in the following table:

*Table 1. Data type conversion for iWay enterprise stage*

InfoSphere DataStage SQL data type	Underlying data type	iWay data type
Integer	int32	Integer
Float, Real	sfloat	Single Float



Table 1. Data type conversion for iWay enterprise stage (continued)

InfoSphere DataStage SQL data type	Underlying data type	iWay data type
Double	dfloat	Double Float
Decimal Numeric	decimal ( <i>m,n</i> )	Decimal ( <i>m,n</i> )
Unknown Char LongVarChar VarChar	string [ <i>n</i> ]	Alphanumeric (length= <i>n</i> )
Binary Bit LongVarBinary VarBinary	raw	Binary
Date	date	Date
Unknown Char LongVarChar VarChar	string	Text
Not supported	Not supported	Graphic (DBCS)
Time	time	Time
Timestamp	timestamp	Timestamp

## Setting iWay enterprise stage properties using stage editor

To get your iWay enterprise stage functioning, you must set the following properties by using the stage editor.

### Stage page

The Stage page has a maximum of three tabs - General, Advanced, and NLS. Using these tabs, you can specify the properties of the iWay enterprise stage.

#### General tab

On the **General** tab, you can specify an optional description of the stage.

#### Advanced tab

On the Advanced tab, you can specify how the stage should run. You can specify the following properties:

- **Execution Mode.** When performing a read operation, the stage runs in sequential mode by default. In sequential mode, the conductor node processes the operation. When performing a lookup operation, the stage runs in parallel mode by default.
- **Combinability mode.** The default combinability mode is Auto. In Auto mode, the operators underlying the parallel stages are combined so that they run in the same process to improve performance.
- **Preserve partitioning.** You can select **Set** or **Clear**. If you select **Set**, a read operation sends a request to the next stage to preserve partitioning.

- **Node pool and resource constraints.** Select this option to constrain parallel execution to the node pools and resource pools that are specified in the grid. Use the grid to select node pools and resource pools. The selections are populated from the configuration file.
- **Node map constraint.** Select this option to constrain parallel execution to the nodes in a defined node map. You can define a node map by typing node numbers into the text box or by clicking the Browse button to select nodes from the **Available Nodes** window.

**Note:** The Advanced tab in Stage page is blank if you are using the stage to perform a direct lookup operation on a table via iWay, that is if you have selected a lookup mode of sparse.

### NLS Map tab

On the **NLS Map** tab, you can define a character set map for the iWay enterprise stage. The character set map that you define overrides the default character set map set for the project or job. If a job requires the NLS map as a parameter, you can specify on this tab that the map should be supplied as a job parameter.

## Output page

In the Output page, you can specify how the iWay enterprise stage reads data via an iWay server. The iWay enterprise stage can have only one output link. The Output page has four tabs - General, Properties, Columns, and Advanced.

### General tab

On the **General** tab, you can specify an optional description of the output link.

### Properties tab

On the **Properties** tab, you can specify properties for the output link. The properties that you specify dictate how incoming data is read and from what table. Properties without default settings appear in red and turn black when you supply a value.

The following table lists the properties and their attributes. A more detailed description of each property follows.

*Table 2. Source properties and corresponding values*

Property	Values	Default	Required?	Dependent of
Lookup type	<ul style="list-style-type: none"> <li>• Normal</li> <li>• Sparse</li> </ul>	Normal	Yes if output is a reference link connected to a lookup stage	N/A
Read method	<ul style="list-style-type: none"> <li>• Table</li> <li>• Auto-generated SQL</li> <li>• User-defined SQL</li> </ul>	Table	Yes	N/A

Table 2. Source properties and corresponding values (continued)

Property	Values	Default	Required?	Dependent of
Table	<string>	N/A	Yes if Read Method = Table or Auto-generated SQL	N/A
Where clause	<string>	N/A	No	Table
Select list	<string>	N/A	No	Table
Query	<string>	N/A	Yes (if Read Method = Auto-generated SQL or User-defined SQL)	N/A
Timeout	<string>	0	No	N/A

Table 3. Connection properties and corresponding values

Header	Header	Header	Header	Header
Server	<string>	N/A	No	N/A
User	<string>	N/A	No	N/A
Password	<string>	N/A	No	N/A

Table 4. Options properties and corresponding values

Header	Header	Header	Header	Header
Close Command	<string>	N/A	No	N/A
Query Type	<ul style="list-style-type: none"> <li>• SQL</li> <li>• Command</li> <li>• Stored procedure</li> </ul>	SQL string	No	Close command
Timeout	<string>	0	No	Close command
Open Command	<string>	N/A	No	N/A
Query Type	<ul style="list-style-type: none"> <li>• SQL</li> <li>• Command</li> <li>• Stored procedure</li> </ul>	SQL string	No	Open command
Timeout	<string>	N/A	No	Open command
Data Password	<string>	N/A	No	N/A
EDA Settings	<string>	N/A	No	N/A

## Source category

### Lookup type

When the iWay enterprise Stage is connected to a lookup stage via a reference link, you can specify whether the iWay enterprise Stage provides data for an in-memory or direct lookup operation on a database.

### **Read method**

You can specify a table or query when reading a database via iWay. Select a read method of Table in order to use the Table property. If you select a read method of Auto-generated SQL, then an SQL query is automatically generated, based on the columns you define and the table you specify in the Table property. Select User-defined SQL to define your own query.

### **Query**

You can use this property to specify a SQL query when you choose a read method of User-defined SQL or Auto-generated SQL. If using Auto-generated SQL, you must select a table and specify some column definitions. An SQL statement can contain joins, views, database links, synonyms, and so on.

### **Table**

Specify the name of the table that you want to access via iWay. You must have SELECT privileges on the table.

If using a read method of Table, then the Table property has the following dependent properties:

- **Where clause**

Using this property, you can specify a WHERE clause of the SELECT statement to specify the rows of the table to include or exclude from the read operation. If you do not supply a WHERE clause, all rows are read.

- **Select List**

Using this property, you can specify an SQL select list of column names.

### **Timeout**

Optionally enter a timeout value (in seconds) for the SQL statement specified for the read or lookup operation. The default value is 0, which causes an indefinite wait time for the SQL statement to run.

### **Connection category**

#### **Server**

Optionally specify the iWay server that you are using to access the database. If you do not specify the server here, the default server is used.

#### **User**

Optionally specify the user name to use when connecting to the iWay server. This is not required if the iWay server has security mode disabled.

#### **Password**

Optionally specify the password to use when connecting to the iWay server. This is not required if the iWay server has security mode disabled.

## Options category

### Close Command

Optionally specify an SQL statement to be run after data retrieval. The Close Command option has two sub-options:

- **Query Type**

Describes the type of query the close command contains. Choose one of the following options:

- SQL
- Command
- Stored procedure

- **Timeout**

Optionally specify the timeout value (in seconds) for the SQL statement specified with the close command. The default value is 0, which causes an indefinite wait time for the SQL statement to run.

### Open Command

Optionally specify a SQL statement to be executed after data retrieval. The Open Command option has two sub-options:

- **Query Type**

Describes the type of query the open command contains. One of the following:

- SQL
- Command
- Stored procedure

- **Timeout**

Optionally specify the timeout value (in seconds) for the statement specified with the open command. The default is 0, which means the IBM InfoSphere DataStage will wait indefinitely for the statement to execute.

### Data Password

Optionally specify a password to use when accessing the specified table.

### EDA Settings

Optionally specify values for the iWay environment variable in a list of *name=value* pairs that are separated by semicolon.



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## 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*

Resource	Description and location
IBM Support Portal	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>
Software services	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>
My IBM	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>
Training and certification	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>
IBM representatives	You can contact an IBM representative to learn about solutions at <a href="http://www.ibm.com/connect/ibm/us/en/">www.ibm.com/connect/ibm/us/en/</a>

## Providing feedback

The following table describes how to provide feedback to IBM about products and product documentation.

*Table 6. Providing feedback to IBM*

Type of feedback	Action
Product feedback	You can provide general product feedback through the Consumability Survey at <a href="http://www.ibm.com/software/data/info/consumability-survey">www.ibm.com/software/data/info/consumability-survey</a>

Table 6. Providing feedback to IBM (continued)

Type of feedback	Action
Documentation feedback	<p>To comment on the information center, click the Feedback link on the top right side of any topic in the information center. You can also send comments about PDF file books, the information center, or any other documentation in the following ways:</p> <ul style="list-style-type: none"><li data-bbox="933 436 1414 495">• Online reader comment form: <a href="http://www.ibm.com/software/data/rcf/">www.ibm.com/software/data/rcf/</a></li><li data-bbox="933 499 1414 531">• E-mail: <a href="mailto:comments@us.ibm.com">comments@us.ibm.com</a></li></ul>



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## Accessing 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.iisinfo.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.iisinfo.nav.doc/dochome/iisinfo_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/iisinfo/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`.
- You can also order IBM publications in hardcopy format online or through your local IBM representative. To order publications online, go to the IBM Publications Center at `http://www.ibm.com/e-business/linkweb/publications/servlet/pbi.wss`.

## **Providing feedback about the documentation**

You can send your comments about documentation in the following ways:

- Online reader comment form: [www.ibm.com/software/data/rcf/](http://www.ibm.com/software/data/rcf/)
- E-mail: [comments@us.ibm.com](mailto:comments@us.ibm.com)

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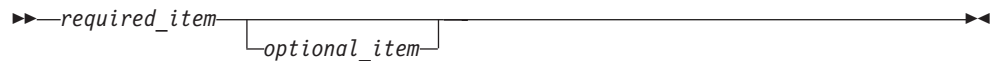
## How to read syntax diagrams

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).



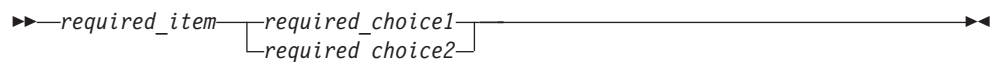
- Optional items appear below the main path.



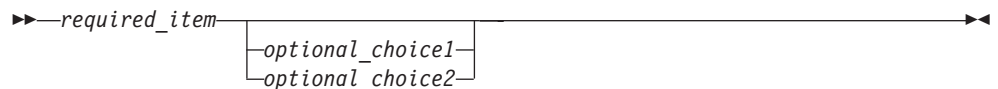
If an optional item appears above the main path, that item has no effect on the execution of the syntax element and is used only for readability.



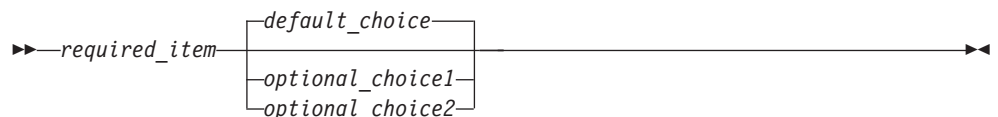
- If you can choose from two or more items, they appear vertically, in a stack. If you must choose one of the items, one item of the stack appears on the main path.



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



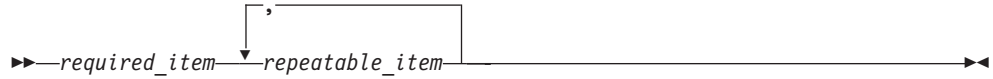
If one of the items is the default, it appears above the main path, and the remaining choices are shown below.



- An arrow returning to the left, above the main line, indicates an item that can be repeated.

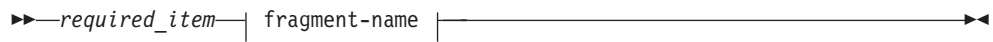


If the repeat arrow contains a comma, you must separate repeated items with a comma.

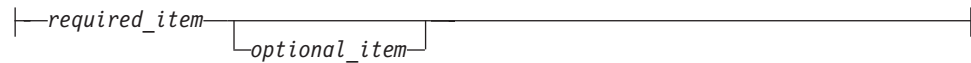


A repeat arrow above a stack indicates that you can repeat the items in the stack.

- 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).

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## 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.

### IBM and accessibility

See the IBM Human Ability and Accessibility Center for more information about the commitment that IBM has to accessibility.



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