

IBM InfoSphere DataStage and QualityStage
Version 11 Release 3

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 21.

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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.

The 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.

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.

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
Double	dfloat	Double Float

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

InfoSphere DataStage SQL data type	Underlying data type	iWay data type
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"> • Normal • Sparse 	Normal	Yes if output is a reference link connected to a lookup stage	N/A
Read method	<ul style="list-style-type: none"> • Table • Auto-generated SQL • User-defined SQL 	Table	Yes	N/A
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

Table 2. Source properties and corresponding values (continued)

Property	Values	Default	Required?	Dependent of
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"> • SQL • Command • Stored procedure 	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"> • SQL • Command • Stored procedure 	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.

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.

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.

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. Because the information center uses XHTML, you can set display preferences in your browser. This 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 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:

```
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.

```
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.

```
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.

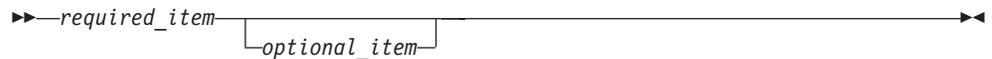
Appendix C. How to read syntax diagrams

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).



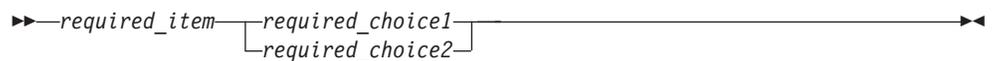
- Optional items appear below the main path.



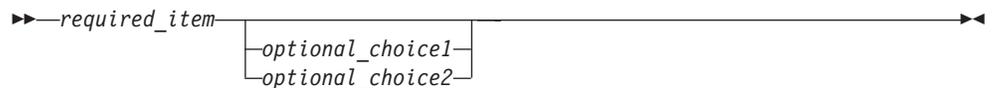
If an optional item appears above the main path, that item has no effect on the execution of the syntax element and is used only for readability.



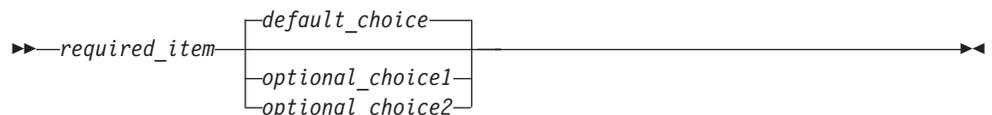
- If you can choose from two or more items, they appear vertically, in a stack. If you must choose one of the items, one item of the stack appears on the main path.



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).

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

Resource	Description and location
IBM Support Portal	You can customize support information by choosing the products and the topics that interest you at www.ibm.com/support/entry/portal/Software/Information_Management/InfoSphere_Information_Server
Software services	You can find information about software, IT, and business consulting services, on the solutions site at www.ibm.com/businesssolutions/
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 www.ibm.com/account/
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 http://www.ibm.com/training
IBM representatives	You can contact an IBM representative to learn about solutions at www.ibm.com/connect/ibm/us/en/

Appendix E. Accessing the product documentation

Documentation is provided in a variety of formats: in the online IBM Knowledge Center, in an optional locally installed information center, and as PDF books. You can access the online or locally installed help directly from the product client interfaces.

IBM Knowledge Center is the best place to find the most up-to-date information for InfoSphere Information Server. IBM Knowledge 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 IBM Knowledge Center from the installed product or from a web browser.

Accessing IBM Knowledge Center

There are various ways to access the online documentation:

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

- Type the address in a web browser, for example, when you are not logged in to the product.

Enter the following address to access all versions of InfoSphere Information Server documentation:

```
http://www.ibm.com/support/knowledgecenter/SSZJPZ/
```

If you want to access a particular topic, specify the version number with the product identifier, the documentation plug-in name, and the topic path in the URL. For example, the URL for the 11.3 version of this topic is as follows. (The ⇒ symbol indicates a line continuation):

```
http://www.ibm.com/support/knowledgecenter/SSZJPZ_11.3.0/⇒  
com.ibm.swg.im.iis.common.doc/common/accessingiidoc.html
```

Tip:

The knowledge center has a short URL as well:

```
http://ibm.biz/knowctr
```

To specify a short URL to a specific product page, version, or topic, use a hash character (#) between the short URL and the product identifier. For example, the short URL to all the InfoSphere Information Server documentation is the following URL:

```
http://ibm.biz/knowctr#SSZJPZ/
```

And, the short URL to the topic above to create a slightly shorter URL is the following URL (The ⇒ symbol indicates a line continuation):

```
http://ibm.biz/knowctr#SSZJPZ_11.3.0/com.ibm.swg.im.iis.common.doc/⇒  
common/accessingiidoc.html
```

Changing help links to refer to locally installed documentation

IBM Knowledge Center contains the most up-to-date version of the documentation. However, you can install a local version of the documentation as an information center and configure your help links to point to it. A local information center is useful if your enterprise does not provide access to the internet.

Use the installation instructions that come with the information center installation package to install it on the computer of your choice. After you install and start the information center, you can use the **iisAdmin** command on the services tier computer to change the documentation location that the product F1 and help links refer to. (The `⇒` symbol indicates a line continuation):

Windows

```
IS_install_path\ASBServer\bin\iisAdmin.bat -set -key ⇒  
com.ibm.iis.infocenter.url -value http://<host>:<port>/help/topic/
```

AIX® Linux

```
IS_install_path/ASBServer/bin/iisAdmin.sh -set -key ⇒  
com.ibm.iis.infocenter.url -value http://<host>:<port>/help/topic/
```

Where `<host>` is the name of the computer where the information center is installed and `<port>` is the port number for the information center. The default port number is 8888. For example, on a computer named `server1.example.com` that uses the default port, the URL value would be `http://server1.example.com:8888/help/topic/`.

Obtaining PDF and hardcopy documentation

- The 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>.

Appendix F. Providing feedback on the product documentation

You can provide helpful feedback regarding IBM documentation.

Your feedback helps IBM to provide quality information. You can use any of the following methods to provide comments:

- To provide a comment about a topic in IBM Knowledge Center that is hosted on the IBM website, sign in and add a comment by clicking **Add Comment** button at the bottom of the topic. Comments submitted this way are viewable by the public.
- To send a comment about the topic in IBM Knowledge Center to IBM that is not viewable by anyone else, sign in and click the **Feedback** link at the bottom of IBM Knowledge Center.
- Send your comments by using the online readers' comment form at www.ibm.com/software/awdtools/rcf/.
- Send your comments by e-mail to comments@us.ibm.com. Include the name of the product, the version number of the product, and the name and part number of the information (if applicable). If you are commenting on specific text, include the location of the text (for example, a title, a table number, or a page number).

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Table 6. Use of cookies by InfoSphere Information Server products and components

Product module	Component or feature	Type of cookie that is used	Collect this data	Purpose of data	Disabling the cookies
Any (part of InfoSphere Information Server installation)	InfoSphere Information Server web console	<ul style="list-style-type: none"> • Session • Persistent 	User name	<ul style="list-style-type: none"> • Session management • Authentication 	Cannot be disabled
Any (part of InfoSphere Information Server installation)	InfoSphere Metadata Asset Manager	<ul style="list-style-type: none"> • Session • Persistent 	No personally identifiable information	<ul style="list-style-type: none"> • Session management • Authentication • Enhanced user usability • Single sign-on configuration 	Cannot be disabled

Table 6. Use of cookies by InfoSphere Information Server products and components (continued)

Product module	Component or feature	Type of cookie that is used	Collect this data	Purpose of data	Disabling the cookies
InfoSphere DataStage	Big Data File stage	<ul style="list-style-type: none"> • Session • Persistent 	<ul style="list-style-type: none"> • User name • Digital signature • Session ID 	<ul style="list-style-type: none"> • Session management • Authentication • Single sign-on configuration 	Cannot be disabled
InfoSphere DataStage	XML stage	Session	Internal identifiers	<ul style="list-style-type: none"> • Session management • Authentication 	Cannot be disabled
InfoSphere DataStage	IBM InfoSphere DataStage and QualityStage Operations Console	Session	No personally identifiable information	<ul style="list-style-type: none"> • Session management • Authentication 	Cannot be disabled
InfoSphere Data Click	InfoSphere Information Server web console	<ul style="list-style-type: none"> • Session • Persistent 	User name	<ul style="list-style-type: none"> • Session management • Authentication 	Cannot be disabled
InfoSphere Data Quality Console		Session	No personally identifiable information	<ul style="list-style-type: none"> • Session management • Authentication • Single sign-on configuration 	Cannot be disabled
InfoSphere QualityStage Standardization Rules Designer	InfoSphere Information Server web console	<ul style="list-style-type: none"> • Session • Persistent 	User name	<ul style="list-style-type: none"> • Session management • Authentication 	Cannot be disabled
InfoSphere Information Governance Catalog		<ul style="list-style-type: none"> • Session • Persistent 	<ul style="list-style-type: none"> • User name • Internal identifiers • State of the tree 	<ul style="list-style-type: none"> • Session management • Authentication • Single sign-on configuration 	Cannot be disabled
InfoSphere Information Analyzer	Data Rules stage in the InfoSphere DataStage and QualityStage Designer client	Session	Session ID	Session management	Cannot be disabled

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