

Ascential DataStage™

TX Map Stage Guide

Version 1.0.1



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How to Use This Guide

With DataStage TX Map you can extend DataStage with complex data mapping capabilities and extensive connectivity features. Version 1.0.1 of DataStage TX Map is compatible with Ascential DataStage Release 7.5.1.

Audience

This guide is intended for DataStage designers who create or modify jobs that use the TX Map stage.

How This Book is Organized

The following table lists topics that may be of interest to you and it provides links to these topics.

To learn about	Read...
Functionality	"Functionality" on page 1
Configuration Requirements	"Configuration Requirements" on page 2
Installation	"Installing the Plug-In" on page 2
The DataStage TX Map Stage	"About DataStage TX Map" on page 3
The Stage page	"About the Stage Page" on page 4
Populating the map directory	"Populating the Map Directory" on page 10
Defining input data	"Defining Input Data" on page 12
Defining output data	"Defining Output Data" on page 16
Compiling and running the job	"Compiling and Running the Job" on page 18

Related Documentation

To learn more about documentation from other Ascential products and third-party documentation as they relate to the TX Map stage, refer to the following section/table.

Ascential Software Documentation

Guide	Description
<i>Ascential DataStage Server Job Developer's Guide</i>	Instructions for using a stage in a DataStage job
<i>Ascential DataStage Designer Guide</i>	General principles for designing jobs
<i>Ascential MetaStage User's Guide</i>	Information about Ascential MetaStage™
<i>Ascential DataStage NLS Guide</i>	Information about NLS and techniques for character-set mapping
<i>Ascential DataStage Plug-In Installation and Configuration Guide</i>	Information required to configure your system and install this stage
<i>Ascential DataStage TX: An Introduction</i>	Information about DataStage TX
<i>Design Studio Introduction</i>	Information about the Map Designer, DataStage TX maps, card options, and the Type Designer
<i>Map Designer Reference Guid</i>	Information about the Map Designer, DataStage TX maps, card options, and the Type Designer

Conventions

Convention	Used for...
bold	Field names, button names, menu items, and keystrokes. Also used to indicate filenames, and window and dialog box names.
<code>user input</code>	Information that you need to enter as is.
<code>code</code>	Code examples

Convention	Used for...
<i>variable</i> or <variable>	Placeholders for information that you need to enter. Do not type the greater-/less-than brackets as part of the variable.
>	Indicators used to separate menu options, such as: Start >Programs >Ascential DataStage
[A]	Options in command syntax. Do not type the brackets as part of the option.
B...	Elements that can repeat.
A B	Indicator used to separate mutually-exclusive elements.
{ }	Indicator used to identify sets of choices.

Contacting Support

To reach Customer Care, please refer to the information below:

Call toll-free: 1-866-INFONOW (1-866-463-6669)

Email: support@ascentialsoftware.com

Ascential Developer Net: <http://developernet.ascential.com>

Please consult your support agreement for the location and availability of customer support personnel.

To find the location and telephone number of the nearest Ascential Software office outside of North America, please visit the Ascential Software Corporation website at <http://www.ascentialsoftware.com>.

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Introduction

With DataStage TX Map you can extend Ascential DataStage with complex data mapping capabilities and extensive connectivity features using DataStage TX maps. DataStage TX maps are open definitions for data mapping, validation, and data routing. You can use an existing DataStage TX map with DataStage TX Map. Alternatively, you can create a start map based on the selected input and output link meta data.

You can configure DataStage TX Map as:

- A source with no input link and one or many output links
- A target with one input link and no output links
- A processing stage with one input link and one or more output links

DataStage TX Map is an active stage.

Functionality

DataStage TX Map has the following functionality and benefits:

- Executes existing DataStage TX maps
- Supports complex meta data formats supported only by type trees, for example, XML, EDI, SWIFT, etc.
- Provides access to over 60 connectivity adapters such as E-mail, Siebel (certified), CICS, COM, CORBA, JNDI (LDAP, etc.), JCA, SNMP, Socket, MSMQ, Oracle AQ, MIME, S/MIME, OpenPGP, and HTTP(S)
- Supports creating a start map based on the selected input and output link meta data
- Supports editing and configuring the TX map and card options

The following functionality is not supported:

- NLS (National Language Support)
- Ascential MetaStage™
- Reference links

Note You can use DataStage TX Map to achieve the same functionality as reference links by using multiple input cards or lookups.

Configuration Requirements

For general configuration requirements, see *Ascential DataStage Plug-In Installation and Configuration Guide*.

UNIX Platforms. You must install an FTP server on any DataStage server running on a UNIX platform. Installation of an FTP server allows you to transfer files from the DataStage server to a Windows client during design time. *Ascential DataStage Plug-In Installation and Configuration Guide* provides a list of supported UNIX platforms.

Solaris Platforms. A known compatibility issue exists between DataStage TX Map and DataStage EE on Solaris. You must install DataStage TX Rapid Release 68256 to resolve this problem. You can find this Rapid Release on the DataStage TX Map CD or obtain it from the Ascential Electronic Software Delivery site. If you have not received an entitlement notification for this Rapid Release, contact Customer Care to request it.

Maps Using Java Class Adapters on HP-UX. To configure maps that use Java Class Adapters in the Map Stage instances, make the following changes for HP-UX:

- Specify the following JVM option in the DataStage TX configuration file *dstx.ini*:
`Option1=-Xusealtsigs`
- Add the following paths to the SHLIB_PATH environment variable in the DataStage *dse* environment file:
`$DSHOME/java/lib`
`$DSHOME/java/jre/lib`
`$DSHOME/java/jre/lib/PA_RISC2.0`
`$DSHOME/java/jre/lib/PA_RISC2.0/hotspot`

Installing the Plug-In

For instructions and information supporting the installation, see *Ascential DataStage Plug-In Installation and Configuration Guide*.

Before installing DataStage TX Map, be sure that required components for DataStage and DataStage TX are installed:

- DataStage Release 7.5.1 (Client and Server)
- DataStage TX Release 7.5.1
- DataStage TX Design Studio Release 7.5.1

DataStage TX Map uses the dynamic link libraries in DataStage TX 7.5.1. Therefore, you must add the DataStage TX 7.5.1 installation

directory to the system environment variable PATH before you install the DataStage TX Map client.

About DataStage TX Map

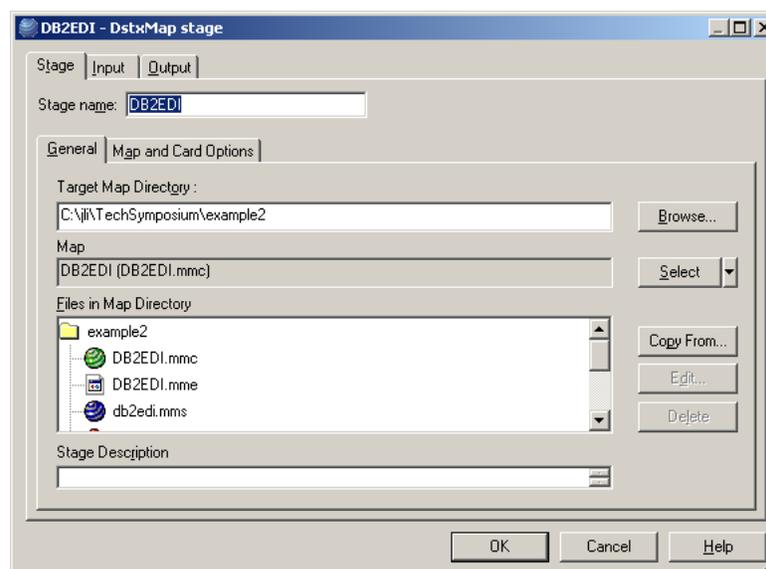
Use DataStage TX Map to:

- Select an existing DataStage TX map or create a new start TX map
- Set the map and card options
- Set up the input link and its column definitions
- Set up the output links and their column definitions
- Select the files related to the DataStage TX map and deploy them into the DataStage Server
- Launch the Map Designer and Type Designer

For information about DataStage TX, see *Ascential DataStage TX: An Introduction*. For information about the Map Designer, DataStage TX maps, card options, and the Type Designer, see *Design Studio Introduction* and *Map Designer Reference Guide*.

Using DataStage TX Map

Double click the **DataStage TX Map** icon, right click the **DataStage TX Map** icon and select **Properties**, or choose **Properties** from the **Edit** menu. The **DstxMap stage** dialog box appears.



This dialog box has up to three pages:

- **Stage.** Displays the name of the stage you are editing, the name of the DataStage TX map with which you are working, and the map and card options.
- **Input.** Identifies the card and type for this link. This page also specifies the associated column definitions. See "[Defining Input Data](#)" on page 12.
- **Output.** Identifies the card and type for each link. This page also specifies the associated column definitions. See "[Defining Output Data](#)" on page 16.

About the Stage Page

The **Stage** page consists of the **Stage name** and the **General** and **Map and Card Options** tabs. The **General** tab on the **Stage** page appears by default.

- **Stage name.** The name of the stage you are editing

The General Tab

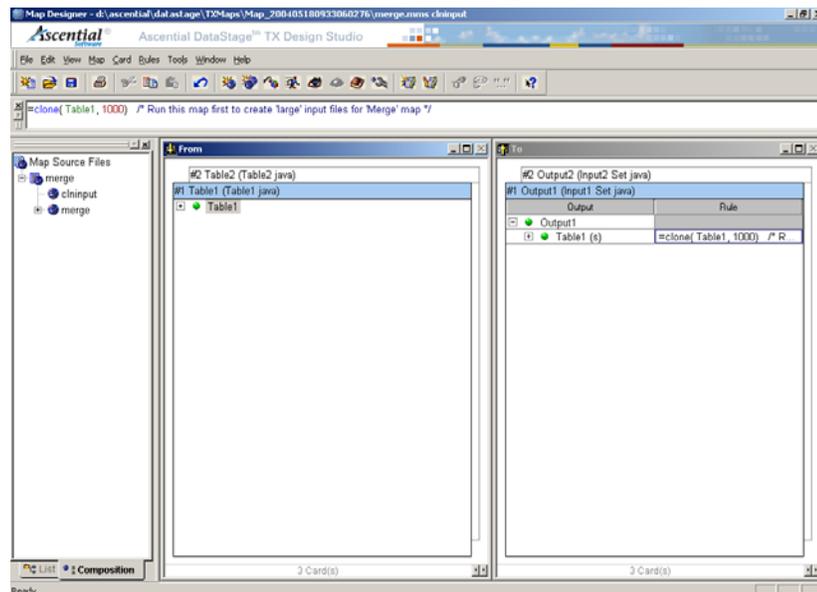
The following fields are in the **General** tab:

- **Target Map Directory.** The path of the directory containing the TX files used by DataStage TX Map. Normally, you store the TX files in a default directory on the DataStage server that you create specifically for the stage. When you create and edit a new DataStage TX Map for the first time, **Target map Directory** contains the default path. The default path is `\datastage\TXMaps` in the directory in which you installed DataStage TX Map. DataStage TX Map creates a corresponding directory on the server. But you can also select an existing directory on the server for this purpose or create a new one.
- **Browse.** Click **Browse** to select or create a custom path for the TX files for the stage. The **Browse** dialog box appears. (See "[The Browse Dialog Box](#)" on page 6.)
- **Map.** The read-only name of the map. **Map** is empty until you select or create a map for the stage.
- **Create.** A button whose label changes depending on whether:
 - A map has been selected
 - There are any map files in the map directory

The operation that is most likely to be useful in the context is shown in bold and corresponds to the current label on the button.

Operations that are meaningless in the context are not active. There are four possible labels:

- **Create.** A DataStage TX Map stage is newly created, with no map selected and no map files in the map directory. The operation is **Create Map from Input and Output Links**. When you select **Create Map from Input and Output Links**, the **Create Map from Input and Output links** dialog box appears. (See page 7.)
- **Select.** No map has been selected, but there are map source or compiled map files in the currently selected directory. The most likely operation is **Select Map from Map Files**. Even though there are existing maps from which to choose in this situation, you can create a new map instead. Therefore **Create Map from Input and Output Links** is also active. When you select **Select Map from Map Files**, the **Select Map** dialog box appears. (See page 8.)
- **Edit.** A map has either been selected or created. The operation is **Edit Map**. Click **Edit** to open the map for editing using DataStage TX Map Designer. **Edit** is active only when the selected map is a source map (.mms file).



See *Map Designer Reference Guide* for additional information. Although editing the map is the most likely operation when a map has been selected, **Create Map from Input and Output Links** and **Select Map from Map Files** are also active.

- **Compile.** A map source file (.mms file) is included in **Files in Map Directory**. The operation is **Compile All Maps for DS Server Platform**. All of the maps in all of the map source files

in the map directory are compiled to run on the platform of the DataStage server. You can compile all maps even when there is no map selected.

- **Files in Map Directory.** A list of all the files and folders that are in the map directory on the DataStage server. If you select a TX map source file or a type tree file in **Files in Map Directory**, the **Edit** button is active. If you click **Edit**, the appropriate TX editor is launched. If you select any file, the **Delete** button is active. If you click **Delete**, the selected file is deleted from the map directory on the server.

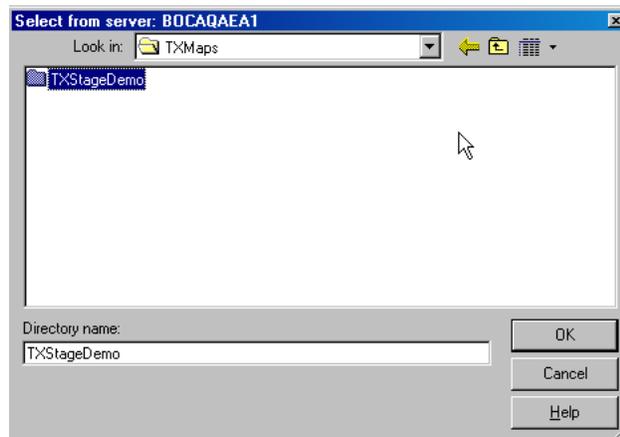
Note If the job is on a UNIX DataStage server, only files with .mmc, .mtt, .mms, and .mdq are displayed. All other files are ignored. These files are sent to the client from the server by FTP and are stored in a default DataStage client working directory. The DataStage client working directory is \DSMapStageWorkingDirectory in the Windows temporary directory. (In general, it is located in C:\Documents and Settings\UserName\Local Settings\Temp.)

- **Copy From.** Click **Copy From** to copy files from your DataStage client to the map folder on the DataStage server. The **Copy Files from this Computer** dialog box appears. (See [page 8](#).) You can use **Copy From** repeatedly to copy files from more than one directory.

See "[Populating the Map Directory](#)" on [page 10](#) for additional information.

The Browse Dialog Box

When you click **Browse**, the **Browse** dialog box appears.

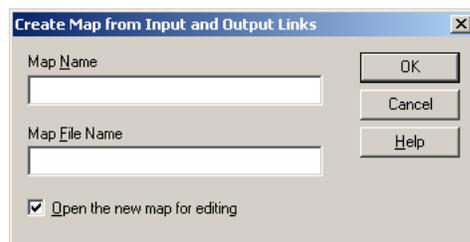


The following fields are in the **Browse** dialog box:

- **Look in.** The name of the default directory selected. Click the down arrow to see where in the directory hierarchy you are currently located. If you want to use a name with more meaning than the default, type the new name in **Directory name**. If you type a nonexisting path, DataStage TX Map creates the corresponding directory when you click **OK** to exit the **Browse** dialog.
- **Directory List.** The directories within the chosen directory. Double-click a directory to move to it.
- **Directory name.** The currently selected directory. Select a directory from the list presented. To create a new directory, enter a new name; DataStage TX Map creates the new directory in the directory specified in **Look in**.

The Create Map from Input and Output Links Dialog Box

When you click **Create**, the **Create Map from Input and Output Links** dialog box appears. Use the **Create Map from Input and Output Links** dialog box to provide the name of the map and the name of the map source file.



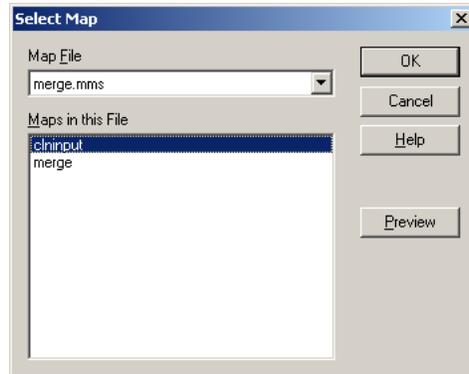
The following fields are in **Create Map from Input and Output Links**:

- **Map Name.** A name for the map.
- **Map File Name.** A name of the source file containing the map. By default, this is the same as the map name.
- **Open the new map for editing.** If selected (the default), the new map is opened in the Map Designer. If cleared, you return to the **General** tab of the **Stage** page.

Note The **DstxMap stage** dialog box is disabled until you close Map Designer.

The Select Map Dialog Box

When you select **Select Map from Map Files**, the **Select Map** dialog box appears. Use the **Select Map** dialog box to select a map from any map source file or compiled map file in the map directory.



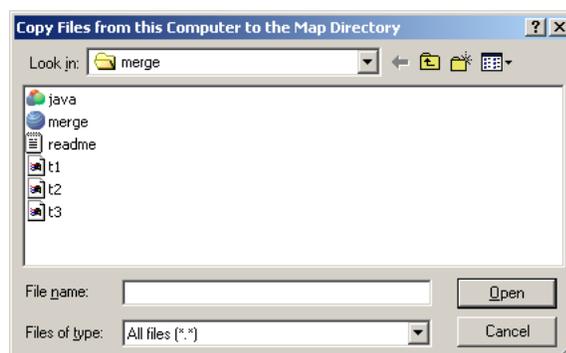
The following fields are in the **Select Map** dialog box:

- **Map File.** The selected map file. Click the down arrow to see the list of available map files. Only .mmc and .mms files are displayed.
- **Maps in this File.** A list of the maps in the selected map file. The first map in the list is preselected by default.
 - Note** Functional maps are not displayed.
- **Preview.** A button that lets you view the selected map in Map Designer before setting it as the map for the stage.

Once you select the map and click **OK** or double-click the map in the list, you return to the **General** tab with the name of the selected map and the name of the map file that contains the selected map in **Map**.

The Copy Files from this Computer Dialog Box

When you click **Copy From**, the **Copy Files from this Computer** dialog box appears. Use **Copy Files from this Computer** to copy files from your client to the server.



The following fields are in the **Copy Files from this Computer** dialog box:

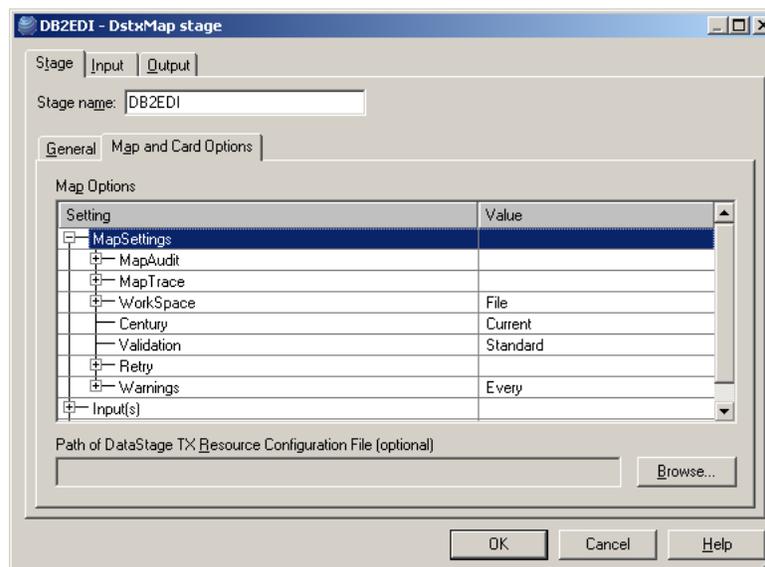
- **Look in.** The current directory. To select a different directory, click the down arrow and select one from the list.
- **File name.** The name of the files to be selected. You have two options:
 - Type the name or names of the files.
 - Click a name or names of the files in the box containing a list of file names available in the current directory of the type specified in the **Files of type** field. Double-clicking a file name selects it.
 - **Files of type.** The type of file listed. Click the down arrow to select which type of file to list for the current directory. When a new type is selected, the list of names in the box containing a list of files is automatically updated.

Once the files have been copied, they appear in the **Files in Map Directory** field.

Note You can copy any file. You are not limited to .mms, .mmc, and .mtt files.

The Map and Card Options Tab

Use the **Map and Card Options** tab to set the map and card options.



The following fields are in the **Map and Card Options** tab:

- **Map Options.** Properties for map executions. These include settings for auditing a map, tracing data content, performance settings, validation settings, and map-specific warnings and errors. Input and output card settings are also included. Only properties for compiled map files built on Windows are displayed. Map and card options are stored in the Repository in XML format. See *Map Designer Reference Guide* for additional information.

Note **Map Options** applies only to the instance of the map that runs in this stage.

- **Path of DataStage TX Resource Configuration File (optional).** A file on the DataStage server that contains environment settings for running the map. Use the **Browse** button to select an existing file on the server.

Note Only the first resource file in each process is loaded. Subsequent resource files are ignored.

Populating the Map Directory

There are three ways to populate the map directory.

Using an Existing Map

In the first scenario, the map for the stage was prepared before the creation of the DataStage job, using a custom path on the DataStage server. In this case, click **Browse** on the **General** tab of the **Stage** page to bind the TX stage to the existing directory. (See [page 4](#).) Once you select the directory, the files in the directory appear in **Files in Map Directory**. Because there is a map source in this directory, the **Select** label appears on the button adjacent to the **Map** text box. If you click **Select**, the **Select Map** dialog box appears; select the map from any map source file or compiled map file in the map directory. Click **OK**.

To complete the scenario, select the appropriate cards and supply the appropriate columns as described in "[Selecting Cards and Supplying Columns](#)" on [page 12](#).

Using an Existing Map on Your Client Machine

In the second scenario, the map for the stage exists on your client machine. In this case, copy the files for the existing map into the map

directory on the DataStage server. Click the **Copy From** button on the **General** tab of the **Stage** page.

On the **Map and Card Options** tab, enter the desired option settings. The option settings are stored in the DataStage Repository, separate from the map file. They are used when the map is run.

To complete the scenario, select the appropriate cards and supply the appropriate columns as described in "[Selecting Cards and Supplying Columns](#)" on [page 12](#).

Creating a New Map from the Input and Output Links

In the third scenario, there is no existing map. In this case, use the **Create** button on the **General** tab of the **Stage** page to create a new map. You can generate a new map, with new type trees, based on the stage's current input and output links. **Create** appears when there are no map files in the directory. For this approach to work, you must provide column definitions for the current input and output links. If you have not populated the **Columns** tabs, you receive a message containing the names of the links that lack columns.

If the **Columns** tabs are complete when you click **Create**, the **Create Map from Input and Output Links** dialog box appears (see [page 7](#)). As you enter the name of the map, **Map File Name** is synchronously updated to show a file name that is the same as the map name. `.mms` is appended to it. Once you edit the source file name directly, the file name is decoupled from the map name. If the specified map source file name does not already have the `.mms` extension, the extension is appended automatically when the map file is created. If you select a map source file name that already exists, you receive a warning message with the option to:

- Overwrite the file
- Use a different name

When you click **OK**, the stage creates a new map source file and a new map within it. The stage also creates a new type tree file for each link.

If **Open the new map for editing** is selected, Map Designer appears when the dialog closes. If cleared, you return to the **General** tab of the **Stage** page.

In the **General** tab of the **Input** page and the **General** tab of the **Output** page, the card selection for each link shows the card that was generated from the columns in that link.

Selecting Cards and Supplying Columns

Whether you use an existing map or an existing map on your client machine, you must select cards and supply columns for your input and output links.

If there is an input link, use the **General** tab to select the card for the input link (see [page 13](#)). **Card for this Link** is initially blank. Select a card from the drop-down list, which contains all available input cards in the map.

On the **Columns** tab of the **Input** page, supply columns that are appropriate for the selected card for the link. See [Configure Link Row and Column Processing for Type](#) on [page 14](#).

If there is one or more output links, use the **General** tab to select the card for each output link (see [page 16](#)). **Card for this Link** is initially blank. Select a card from the drop-down list. DataStage TX Map can have no more than one input link. But there can be many output links. Since a card can be assigned to only one link, the card drop-down list excludes output cards that have already been selected for another output link. The drop-down list also includes a blank entry. If you need to exchange the existing card assignments of two output links, you can do so by clearing the selection for one of the links.

On the **Columns** tab of the **Output** page, supply columns that are appropriate for the selected card for the link. See [Configure Link Row and Column Processing for Type](#) on [page 17](#).

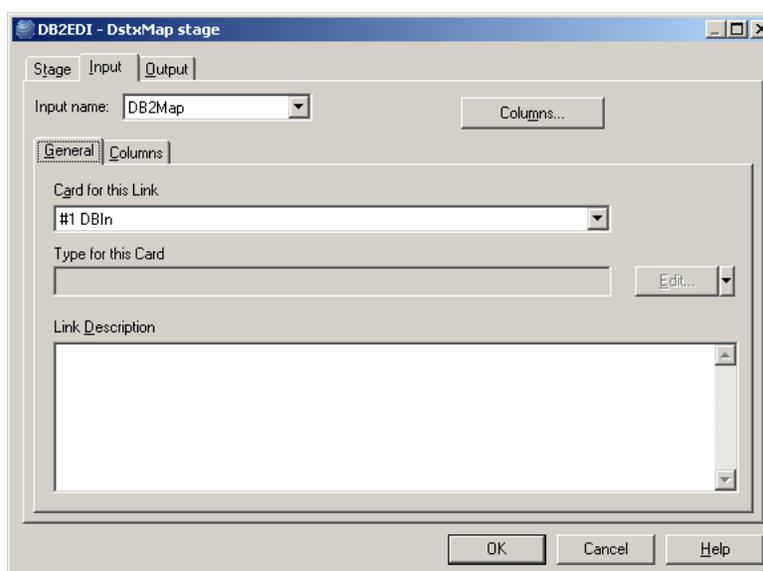
Note When you select a map, **Card for this Link** is automatically set to the first input or output card from the selected map. You can revise the default value to use another card as needed.

Defining Input Data

You can configure DataStage TX Map as a target or as a processing stage. In either case, DataStage TX Map has one input link. Use the **Input** page to identify the card and type for the input link. This page also specifies the associated column definitions.

About the Input Page

Use the **Input** page to select a Map input card for the link.



The **Input** page has an **Input name** field and **General** and **Columns** tabs:

- **Input name.** The name of the input link.

General Tab

This tab is displayed by default. It contains the following properties:

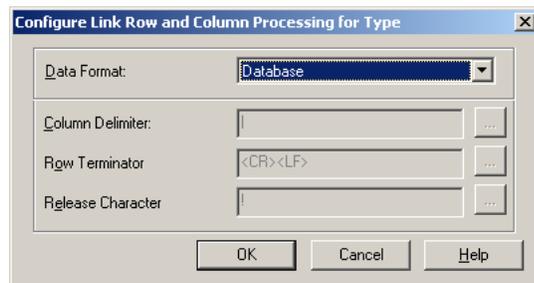
- **Card for this Link.** The card for the link. Use the down arrow to see a list of the available input cards for the currently selected map.
- **Type for this Card.** The type tree selected for the specified card.
- **Edit.** A button that allows you to work with the type tree for the specified card. This button is inactive by default. The context of **Edit** changes depending on the state of DataStage TX Map. Choosing a **Card for the Link** activates the **Edit** button. Use the down arrow to see a list of options:
 - **Edit Type Tree.** Clicking **Edit** is the same as choosing **Edit Type Tree**. Either action opens DataStage TX Type Designer and automatically loads the type tree for the selected card (if the type tree source file is available in the map directory).
 - **Regenerate Type Tree from Link Columns.** If you defined columns for this input link, **Regenerate Type Tree from Link Columns** is active. Choosing **Regenerate Type Tree from Link Columns** automatically generates a type tree based on

the table definition associated with this input link. The generated type tree has the same name as the selected type tree, and the selected type tree is overwritten. This is similar to using an Importer in DataStage TX.

- **Configure Link Row and Column Processing for Type.** Choosing **Configure Link Row and Column Processing for Type** opens the **Configure Link Row and Column Processing for Type** dialog box.
- **Link Description.** An optional description of the input link.

Configure Link Row and Column Processing for Type Dialog Box

When you select **Configure Link Row and Column Processing for Type**, the **Configure Link Row and Column Processing for Type** dialog box appears.



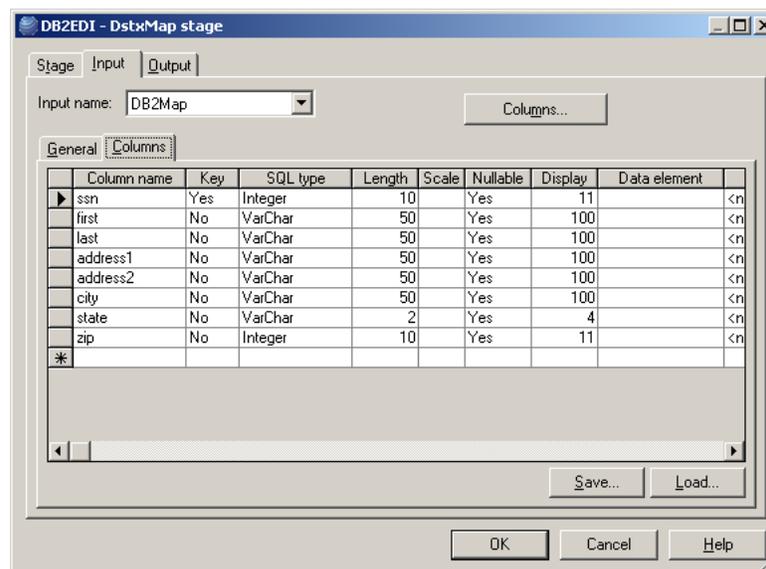
Use the **Configure Link Row and Column Processing for Type** dialog box to specify the data format, the column delimiter, the row terminator, and the release character of the type. **Configure Link Row and Column Processing for Type** contains the following fields:

- **Data Format.** The format of the data. There are three options:
 - **Custom.** You can specify the row and column terminators and the release character. If you select **Custom**, then **Column Delimiter**, **Row Terminator**, and **Release Character** are active.
 - **Database.** Column delimiter is set to pipe (|). Row terminator is set to carriage return (<CR>) line feed (<LF>). Release character is set to exclamation point (!).
 - **Raw Data.** The data is passed to or from the DataStage TX Map in a single buffer consisting of one row and one column. Use **Raw Data** when the data passed to or from the stage is not meaningful to DataStage.

- **Column Delimiter.** The symbol representing the end of a column. Click the ... button to add DataStage TX column-delimiter symbols.
- **Row Terminator.** The symbol representing the end of a row. Click the ... button to add DataStage TX row-terminator symbols.
- **Release Character.** The symbol representing the release character. The release character is a one-byte character in the data identifying the following character as regular data, not as column delimiter, row terminator, or release character. Click the ... button to add DataStage TX release-character symbols.

Columns Tab

This tab contains the column definitions for the data being brought in on the input link.



The column definitions appear in the same order as in the Columns grid.

If the TX group type for the card is originally generated from a database table (using the TX Database Interface Designer), the meta data for the same table can be imported directly in the Repository using the DataStage import tools. Generate the columns for the link by clicking **Load** and selecting or importing the appropriate table definition. Otherwise, enter the definitions for the columns by hand. Click **Save** to save the meta data to the DataStage Repository.

For information about the TX Database Interface Designer, see *Database Interface Designer Reference Guide*.

The **Columns** tab behaves the same way as the **Columns** tab in the ODBC stage. For a description of how to enter and edit column definitions, see *Ascential DataStage Designer Guide*.

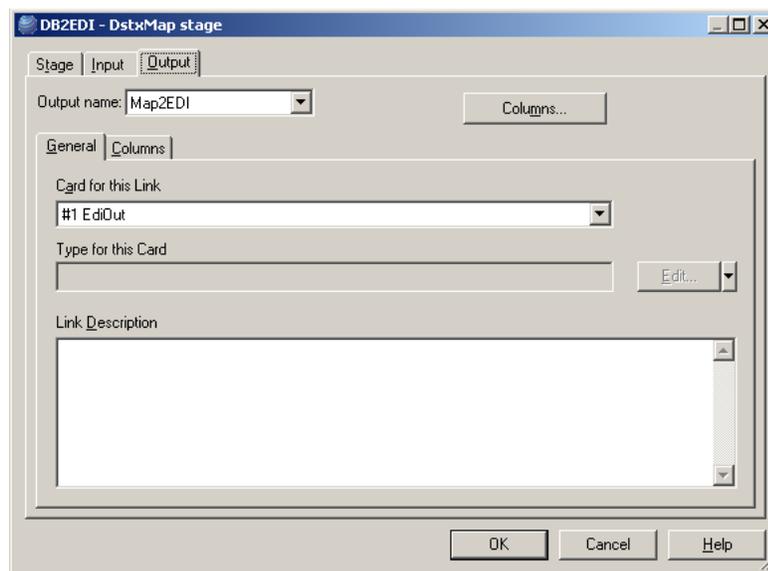
Note If you want to pass raw, unstructured data to the map, select a single column.

Defining Output Data

You can configure DataStage TX Map as a source or as a processing stage. In either case, DataStage TX Map has one or more output links. Use the **Output** page to identify the card and type for the output link. This page also specifies the associated column definitions.

About the Output Page

Use the **Output** page to select a Map output card for the link.



The **Output** page has one field and the **General** and **Columns** tabs.

- **Output name.** The name of the output link.

General Tab

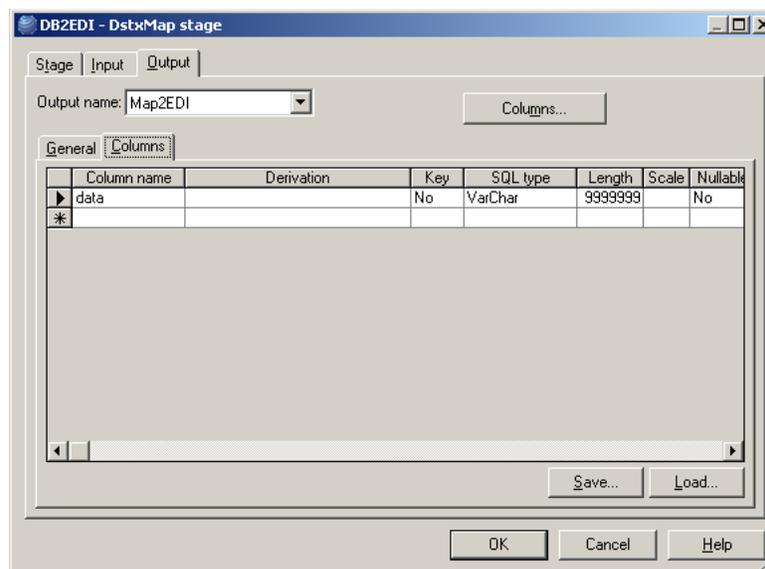
This tab is displayed by default. It contains the following properties:

- **Card for this Link.** The card for the link. Use the down arrow to see a list of the output cards for the currently selected map.

- **Type for this Card.** The type tree selected for the specified card.
- **Edit.** A button that allows you to work with the type tree for the specified card. This button is inactive by default. The context of **Edit** changes depending on the state of DataStage TX Map. Choosing a **Card for the Link** activates the **Edit** button. Use the down arrow to see a list of options:
 - **Edit Type Tree.** Clicking **Edit** is the same as choosing **Edit Type Tree**. Either action opens DataStage TX Type Designer and automatically loads the type tree for the selected card (if the type tree source file is available in the map directory).
 - **Regenerate Type Tree from Link Columns.** If you defined columns for this output link, **Regenerate Type Tree from Link Columns** is active. Choosing **Regenerate Type Tree from Link Columns** automatically generates a type tree based on the table definition associated with this output link. The generated type tree has the same name as the selected type tree, and the selected type tree is overwritten. This is similar to using an Importer in DataStage TX.
 - **Configure Link Row and Column Processing for Type.** Choosing **Configure Link Row and Column Processing for Type** opens the **Configure Link Row and Column Processing for Type** dialog box (see [page 14](#)).
- **Link Description.** An optional description of the output link.

Columns Tab

This tab contains the column definitions for the data being put out on the output link.



If the TX group type for the card is originally generated from a database table (using the TX Database Interface Designer) and the meta data for the same table can be imported directly in the Repository using the DataStage import tools. Generate the columns for the link by clicking **Load** and selecting or importing the appropriate table definition. Otherwise, enter the definitions for the columns by hand. Click **Save** to save the meta data to the DataStage Repository.

For information about the TX Database Interface Designer, see *Database Interface Designer Reference Guide*.

The **Columns** tab behaves the same way as the **Columns** tab in the ODBC stage, and it specifies which columns are aggregated. For a description of how to enter and edit column definitions, see *Ascential DataStage Designer Guide*.

Note If you want to pass raw, unstructured data from the map, select a single column.

Compiling and Running the Job

Complete the definition of the other stages in your job design according to normal DataStage procedures. Compile and run the job.

Sample Jobs

The installation CD for Windows includes sample jobs for DataStage TX Map in the external/examples/TXStageDemo directory. Three versions of samples are included:

- Windows
- Linux
- UNIX (all other supported UNIX platforms)

Each directory contains a readme file for installing and running the sample jobs.