

## Developing a Dynamic Mapping to Run Against Different Sources and Targets

## Abstract

In the Developer tool, you can develop a dynamic mapping that reuses the same mapping logic for different sources and targets. This article describes the steps to create a dynamic mapping with a mapping logic that you can run against different sources and write to different targets. This article assumes that you are familiar with mappings and dynamic mappings and know how to develop and run a mapping.

## Supported Versions

- Informatica Big Data Management 10.0
- Informatica Data Services 10.0
- Informatica Data Quality 10.0

## Table of Contents

Overview. . . . .	2
Use Case: Reuse Dynamic Mapping for Different Sources and Targets. . . . .	3
Source Files. . . . .	3
Target Files. . . . .	5
Dynamic Mapping. . . . .	5
Step 1. Configure the Read_Customer_FF Read Transformation. . . . .	6
Step 2. Configure the Exp_TRIM Expression Transformation. . . . .	6
Create a Dynamic Port and Define Input Rules. . . . .	7
Create a Dynamic Port and Define a Dynamic Expression. . . . .	8
Step 3. Configure the Exp_Output Expression Transformation. . . . .	10
Step 4. Configure the Write_customerTrim_FF Write Transformation. . . . .	12
Configure the Data Object to Use a Parameter. . . . .	12
Create Target Columns from the Mapping Flow. . . . .	13
Step 5. Validate and Save the Mapping. . . . .	14
Step 6. Run the Dynamic Mapping Against Different Sources and Targets. . . . .	14
Run the Mapping for the Customer_FF Source. . . . .	14
Change the Parameter Values. . . . .	15
Run the Mapping for the orders_FF Source. . . . .	16

## Overview

A dynamic mapping is a mapping in which you can change sources, targets, and transformation logic at run time based on parameters and rules that you define. When your organization wants to reuse the same mapping logic for different data sources, develop a dynamic mapping that you can run against different sources and write the mapping output to different targets.

## Use Case: Reuse Dynamic Mapping for Different Sources and Targets

You are a developer for an organization that must clean different data files to remove beginning and end blanks in string values. The data files have different column names and have multiple columns of type string. You need to develop a dynamic mapping that can remove blanks from the beginning and end of strings from different sources and write the output to different targets.

### Source Files

The source files are flat files that contain string data with blanks in the beginning and end. The source files for the Read transformation include Customer\_FF and orders\_FF.

Example procedure reads from the Customer\_FF file in the first mapping run and the orders\_FF file in the second mapping run.

#### Customer\_FF columns and data

Customer\_FF contains the following columns:

```
C_Id
C_Fullname
C_title
C_comp
C_addr
C_suite
C_city
C_state
C_zip5
C_country
C_phone
C_fax
C_date
C_email
C_description
```

where the data type of C\_ID and C\_zip5 columns is number, and the data type of other columns is string.

Customer\_FF contains the following data:

```
C_Id,C_Fullname,C_title,C_comp,C_addr,C_suite,C_city,C_state,C_zip5,C_country,C_phone,C_f
ax,C_date,C_email,C_description
1, Smith John,Account Executive,DKR MANAGEMENT COMPANY INC,100 High Street,
5406,Anytown,TN,22342,USA,4047668150,2124031386,31/08/1985,bwilliams@yahoo.com,    ACTIVE
2,Balasubramanian Krishna,Account Executive,EASTON & COMPANY,71 Congress Parkway,
789,Bangalore,Karnataka,38103,India,
4046345228,4151689756,29/10/1985,bmatthewc@univ.edu,    ACTIVE
3, Johnson Lars,Regional Sales Exec,GREATER BAY BANCORP,123 Snow St.,43543,St. Paul,MN,
55103,USA,4046581534,6122945948,7/9/1992,    ehpuniv.edu,INACTIVE
4,Zogby Kevin,Regional Sales Exec, HEWLETT-PACKARD,317 29th. St.,5856,San Francisco,CA,
94116,USA,4042662730,4155466814,7/8/1985,grobertwuniv.edu,    ACTIVE
5,Franklin Roosevelt,Sales Representative,JAYD TRADING,1511 Wacker Dr,6334,Chicago,IL,
60606,USA,7703965851,2065075486,20/10/1982,trichard@univ.edu,INACTIVE
6, Cruz Emilio,Sales Representative,JEFFERSON-PILOT LIFE INSURANCE,700 Ponce de Leon
Blvd,757,Miami,FL,33134,USA,4043500799,2127655499,31/07/1983,ahelle@mailcity.com,
ACTIVE
7, King BB,Sales Representative,KUWAIT PETROLEUM CORPORATION,18 Beale St,967,Memphis,TN,
38103,USA,4046243979,2151717120,27/09/1989,    glizziem@univ.edu    ,INACTIVE
8,Presley Elvis,Sales Representative,PRINCIPIA PARTNERS,45 N Green St.,43546,Tupelo,MS,
38804,USA,4043733125,3311313591,26/07/1992,,    ACTIVE
9,Olson Floyd,Acct MGR., SOLITON ASSOCIATES INC.,21 Lake Harriet Pkwy,
869790,Mineapolis,MN,55410,USA,7706425402,3232429056,27/08/1993,,INACTIVE
10,Chu Steven,Account Executive,WQXR,2100 Sepulveda Blvd,3434,Los Angeles,CA,90049,USA,
4042319005,2126509756,29/09/1988,akennetha@univ.edu,    ACTIVE
```

For example, the first and third rows have space in the beginning of the name:

```
1, Smith John,  
3, Johnson Lars,
```

#### orders\_FF columns and data

orders\_FF contains the following columns:

```
OrderID  
Customer_ID  
Company  
CompanyAddress  
CompanyCity  
CompanyState  
CompanyZip  
OrderContact  
DeliveryAddress  
DeliveryCity  
DeliveryState  
PaymentType  
PaymentTerms  
Title  
DeliveryOption  
DeliveryVendor  
ConfirmationCode  
OrderAmount  
OrderType  
ProductDescription
```

where the data type of Customer\_ID column is number, and the data type of other columns is string.

orders\_FF contains the following data:

```
O-5079,10110085,JOSEPH TAL LYON & ROSS,96 FISHER ROAD, MAHWAH,NJ,7430,PARKE PERSLEY OR  
RAYFORD LECROY,96 FISHER ROAD,MAHWAH,NJ,American Express,CHARGE,Account  
Executive,UPA,United Parcel Service Air,44162,$21.00 ,Generic,O/L/B P/W L/S TAWNY  
SHIMMER .08 OZ.  
O-6658,10110086,NRCA,10255 W.HIGGINS RD., ROSEMONT,IL,60018-5607,ROLANDA SORTO,10255  
W.HIGGINS RD.,ROSEMONT,IL,American Express,CHARGE,Account Executive,UPA,United Parcel  
Service Air,44163,$56.40 ,Generic,O-L.B PW LIPSTYLO LASTING PERFECTION .08 OZ.  
O-8195,10110087,POND EQUITIES,4522 FT. HAMILTON PKWY., BROOKLYN,NY,11219, KONSTANTIN  
PEDDICORD,4522 FT. HAMILTON PKWY.,BROOKLYN,NY,American Express,CHARGE,Account  
Executive,UPA,United Parcel Service Air,44164,$78.00 ,Generic,O/L/B P/W L/S TAWNY  
SHIMMER LASTING PERFECTION LIPSTYLO TAWNY SHIMMER .08 OZ.  
O-9130,10110088, SCHRODER & COMPANY ,787 SEVENTH AVENUE, NEW YORK,NY,  
10019,GIORGIA TWITCHELL,787 SEVENTH AVENUE,NEW YORK,NY,American Express,CHARGE,Account  
Executive,UPA,United Parcel Service Air,44165,$14.00 ,Generic,A/COL L PERFECTION L/S REF  
P SUPREME LASTING PERFECTION LIPSTYLO TAWNY SHIMMER .08 OZ.  
O-9352,10110089,YUASA TRADING COMPANY (AMERICA),150 EAST 52ND STREET,NEW YORK,NY,  
10005,STEFFI MCGLOWN,150 EAST 52ND STREET,NEW YORK,NY,American Express,CHARGE,Account  
Executive,UPA,United Parcel Service Air,44166,$54.00 ,Generic,O/L/B L PERFECTION REF  
LIPSTYLO COFFEE PEACH SUPREME .08 OZ.  
O-9517,10110090,DAI ICHI KANGYO BANK,1 WORLD TRADE CENTRE SUITE 49 - 11,NEW YORK,NEW  
YORK,10048,AIKEN DOBRICK,1 WORLD TRADE CENTRE SUITE 49 - 11,NEW YORK,NEW YORK,American  
Express,CHARGE,Account Executive,UPR,United Parcel Service Red,  
44167,$58.00 ,Generic,LASTING PERFECTION LIP COLOR HOLLYWOOD GLAMOUR 1.7 G MAUVE ICE #752  
O-9639,10110091,FIRST GLOBAL SECURITIES,614 EAST COLORADO BLVD.,PASADENA,CA,91101,  
KIRSTENI SIPPEL,614 EAST COLORADO BLVD.,PASADENA,CA,American Express,CHARGE,Account  
Executive,FSO,Federal Express Overnight,44168,$24.00 ,Generic,A/COL L PERFECTION L/S REF  
P SUPREME .08 OZ.  
O-9761,10110092,MILTON PARTNERS,56 MASON STREET, GREENWICH ,CT,6830,ORLANTA  
DYSON,56 MASON STREET,GREENWICH,CT,American Express,CHARGE,Account Executive,UPI,United  
Parcel Service International,44169,$75.20 ,Generic,LASTING PERFECTION LIPSTYLO PEACH SU .  
08 OZ.  
O-9883,10110093, TAX ANALYSTS ,6830 N. FAIRFAX DRIVE,ARLINGTON,VA,22213,NEWLIN  
MCCART,6830 N. FAIRFAX DRIVE,ARLINGTON,VA,American Express,CHARGE,Account  
Executive,FSO,Federal Express Overnight,44170,$275.40 ,Generic,O/L/B L PERFECTION L/  
STYLO REF P SUPRE  
O-5438,10110094,VECTORMEX,535 MADISON AVENUE,NEW YORK,NY,10022,LONNA HUGGINS,535 MADISON  
AVENUE,NEW YORK,NY,American Express,CHARGE,Account Executive,FSO,Federal Express
```

```
Overnight,44171,$60.00 ,Generic,LASTING PERFECTION DOUBLE PERFORMANCE LIPSTICK PEACH
SUPREME .08 OZ.
```

For example, the fourth row has space in the beginning and ending of the company name:

```
O-9130,10110088, SCHRODER & COMPANY ,
```

## Target Files

The target file is a flat file where the mapping writes the data after removing the blanks in the beginning and end of string values. Create a customerTrim.csv file as the target file for the target data object.

Use parameters to change the output file name at run time when you use a different data source. The Data Integration Service creates the output file based on the parameter value for the target file name and saves the file to the target directory on the system where Informatica services is installed.

## Dynamic Mapping

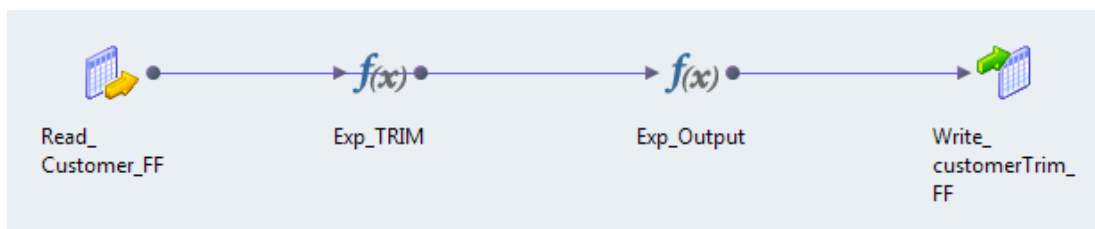
Create a mapping m\_Replication\_Template and configure the following dynamic mapping functionality:

- Read transformation that uses a parameter for the data object to read from different sources
- Dynamic ports in the downstream transformations that can pass new or changed columns
- Expression transformation that contains a dynamic expression to remove leading and trailing spaces in strings
- Write transformation that creates target columns based on the mapping flow and uses a parameter in the target data object for the target file name

When you run the mapping, the Data Integration Service performs the following tasks:

1. Reads the data from the appropriate source file based on the parameter value for the source data object.
2. Passes the new and changed columns to the downstream transformations through dynamic ports.
3. Expands the dynamic expression and processes the expression function for each generated port in the dynamic port.
4. Creates columns in the Write transformation based on the mapping flow and writes the transformed data to the appropriate target file based on the parameter value.

The following image shows the objects in the mapping:



The mapping contains the following objects:

### Read\_Customer\_FF

Read transformation that represents a flat file source. The flat file contains string data with leading and ending spaces.

### Exp\_TRIM

Expression transformation that contains a dynamic expression to remove leading and trailing spaces for ports of type string.

### Exp\_Output

Expression transformation that contains transformed string ports, and remaining ports from the source object.

### Write\_customerTrim\_FF

Write transformation that represents a flat file target. The mapping writes the output to the flat file target.

## Step 1. Configure the Read\_Customer\_FF Read Transformation

Configure the Read\_Customer\_FF Read transformation to use a parameter of type Resource to change the source data object between mapping runs.

1. Add a Read transformation that represents the Customer\_FF flat file data object.

The Read transformation appears in the editor as Read\_Customer\_FF.

2. In the **Properties** view, click the **Data Object** tab.

3. Select **Parameter** in the **Specify by** list.

4. Click **New** to create a new parameter.

The **Parameters** dialog box appears.

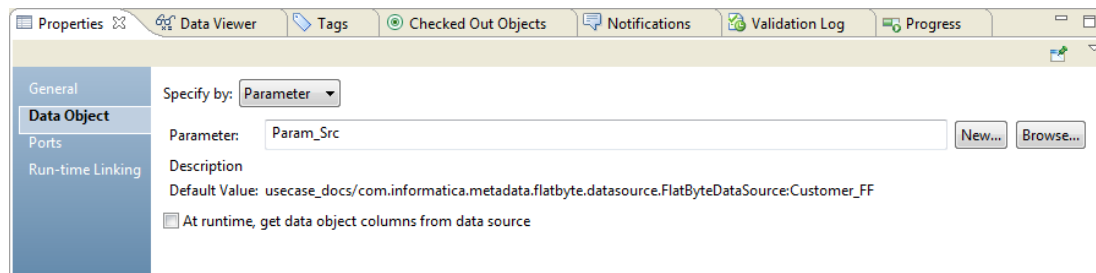
5. Enter the parameter name as `Param_Src`.

6. Click **Browse** in the **Default Value**.

7. In the **Select location** dialog box, select the data object that you want to provide as the default value.

An example default value is `MRS//Cust_Dept/Customer_FF`, where `MRS` is the Model Repository Service and `Cust_Dept` is the project where the `Customer_FF` data object is stored. You can change the value of the parameter when you run the mapping.

The following image shows the **Data Object** tab after you define the settings:



## Step 2. Configure the Exp\_TRIM Expression Transformation

Add an Expression transformation `Exp_TRIM` to the mapping and configure the transformation to remove the spaces in the beginning and end of the strings.

1. Create a dynamic port to receive columns from the Read transformation and define input rules to include only the string ports.
2. Create a dynamic output port and define a dynamic expression to remove the spaces in the beginning and end of the strings.

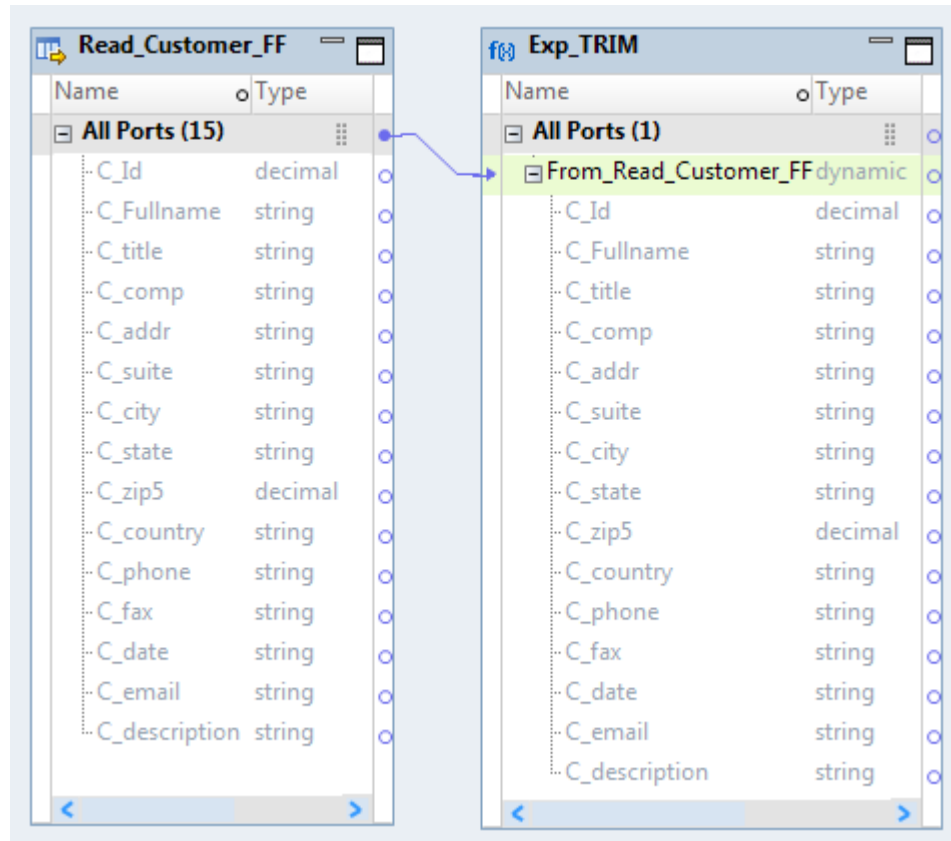
## Create a Dynamic Port and Define Input Rules

Create a dynamic port to receive columns from the Read transformation. Define input rules to include only the string ports in the dynamic port.

1. Drag the All Ports group from the Read\_Customer\_FF transformation to the All Ports group in the Exp\_TRIM transformation.

The Developer tool creates a dynamic port From\_Read\_CUSTOMER\_FF in the Exp\_TRIM transformation.

The following image shows the dynamic port in the Exp\_TRIM transformation that includes all ports from the Read transformation as generated ports:



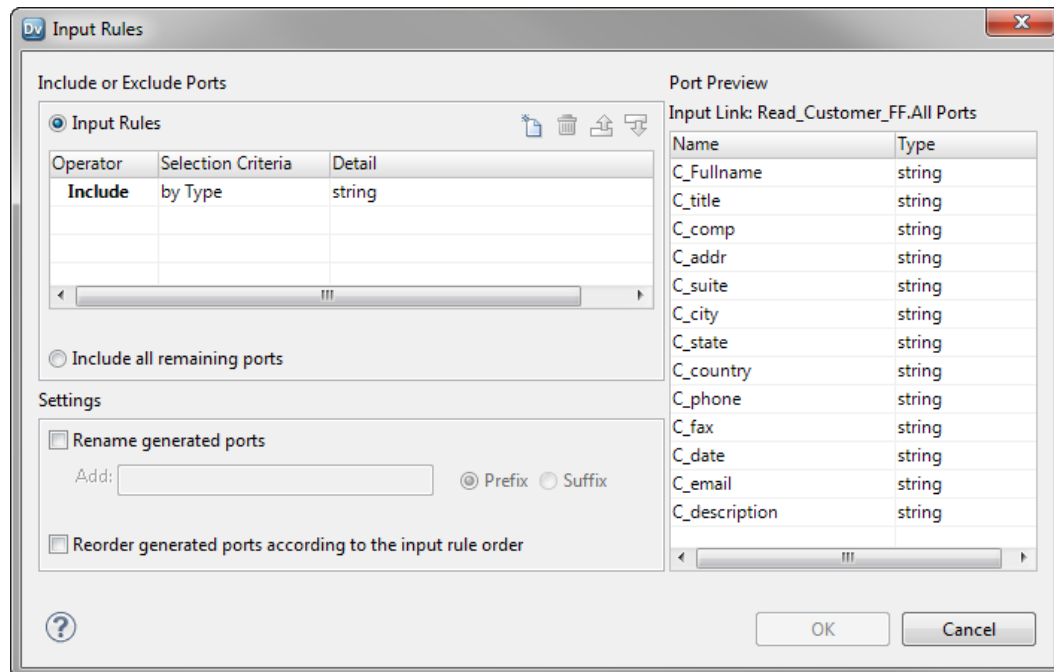
2. Right-click the dynamic port, and select **Edit Input Rules**.

The **Input Rules** dialog box appears.

3. Select **by Type** from the **Selection Criteria** column.
4. Click the **Details** button to select the data type you want to include.
5. In the **Input Rule Detail: By Type** dialog box, select **string** data type from the list.

6. Verify the **Port Preview** area to ensure that only string ports appear.

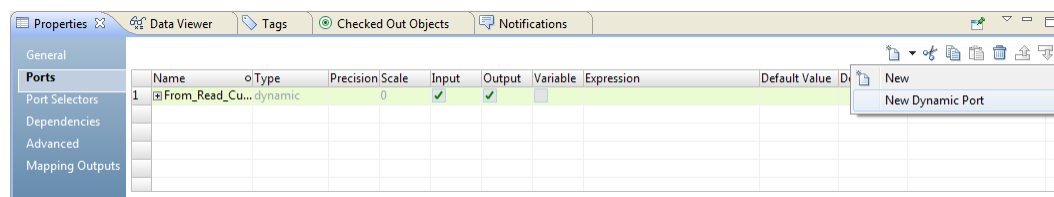
The following image shows the updated input rule and the string ports in the **Port Preview** area of the **Input Rule** dialog box:



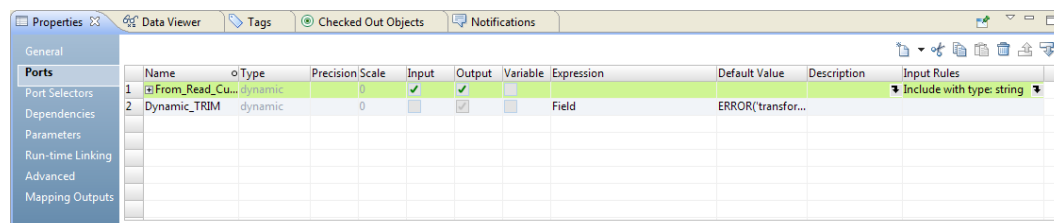
## Create a Dynamic Port and Define a Dynamic Expression

Create a dynamic port as an output-only port in the Exp\_TRIM transformation. Define a dynamic expression to remove the spaces in the beginning and end of the strings.

1. In the **Properties** view of the Exp\_TRIM transformation, click the **Ports** tab.
2. Click **New Dynamic Port**.



3. Clear the **Input** column to make this port an output-only port.
4. Rename the dynamic port that you created as `Dynamic_TRIM`.

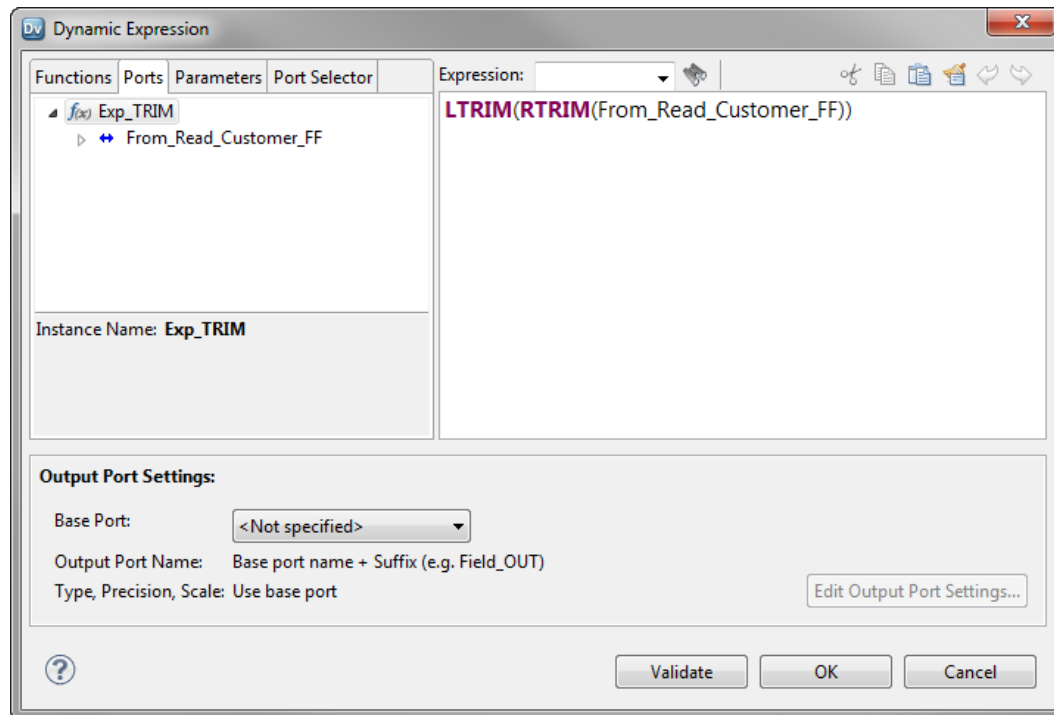


5. In the **Expression** column for the `Dynamic_TRIM` dynamic port, click the **Open** button (🔗).  
The **Dynamic Expression** window opens.



6. Replace the existing expression in the editor with the following expression:

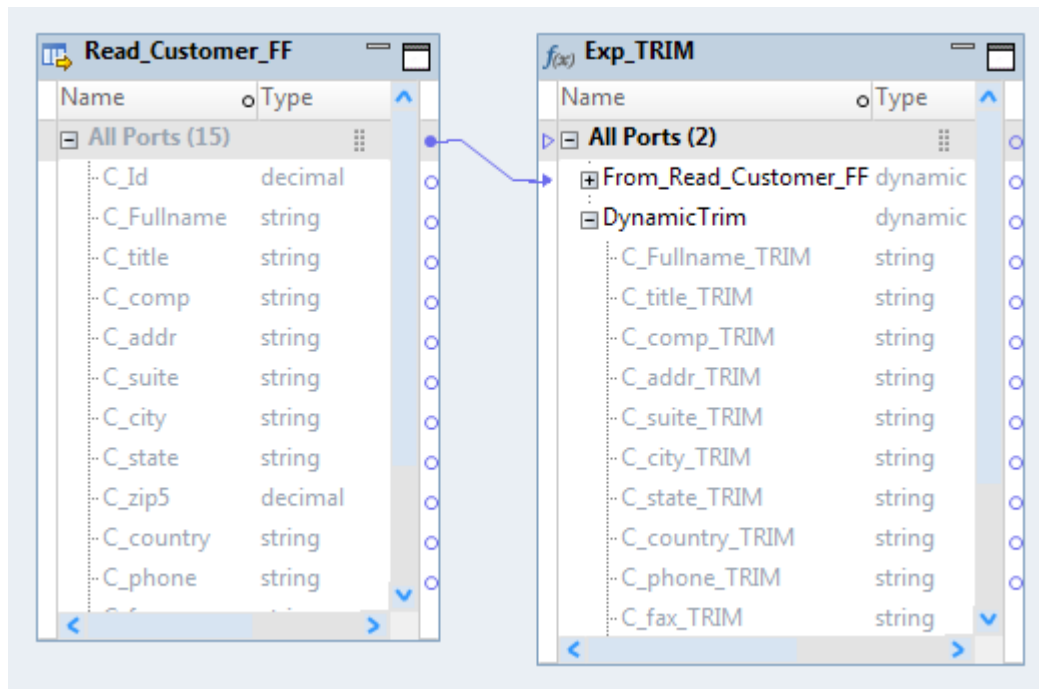
LTRIM(RTRIM(From\_Read\_Customer\_FF))



7. Click **Validate** to validate the expression.
8. Click **OK** to exit the **Validate Expression** dialog box.
9. Rename the output ports for the expression as follows:
- In the **Output Port Settings** area, select the Base Port as From\_Read\_Customer\_FF.
  - Click **Edit Output Port Settings**.  
The **Output Port Settings** dialog box appears.
  - In the **Name** list, select **Base port name + Suffix**.
  - In the **Suffix** box, enter **\_TRIM**.
  - Click **OK**.

10. Click **OK** to exit the **Dynamic Expression** editor.

The following image shows the `Dynamic_TRIM` dynamic port with the renamed generated ports:



### Step 3. Configure the Exp\_Output Expression Transformation

Add an Expression transformation `Exp_Output` to the mapping. Create a dynamic port to get the output ports from the `Exp_TRIM` transformation. Create another dynamic port to get the ports from the `Read` transformation and define input rules to include only the unused ports.

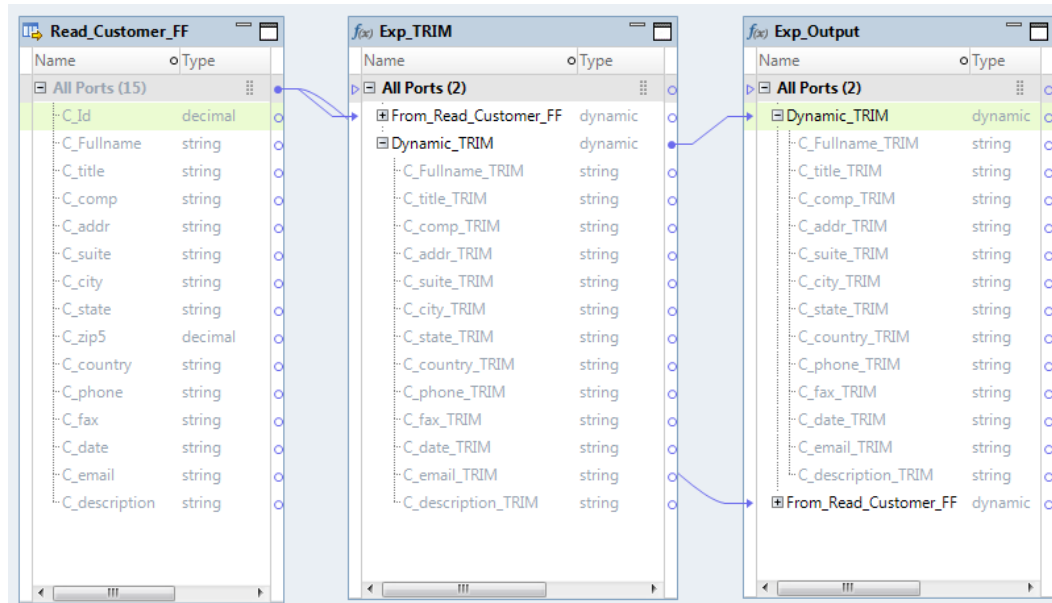
1. From the `Exp_TRIM` transformation, drag the `DynamicTrim` dynamic port to the `All Ports` group in the `Exp_Output` transformation.

The Developer tool creates a dynamic port `DynamicTrim` in the `Exp_Output` transformation.

2. From the `Read_Customer_FF` transformation, drag the `All Ports` group to the `All Ports` group in the `Exp_Output` transformation.

The Developer tool creates a dynamic port `From_Read_Customer_FF` in the `Exp_Output` transformation.

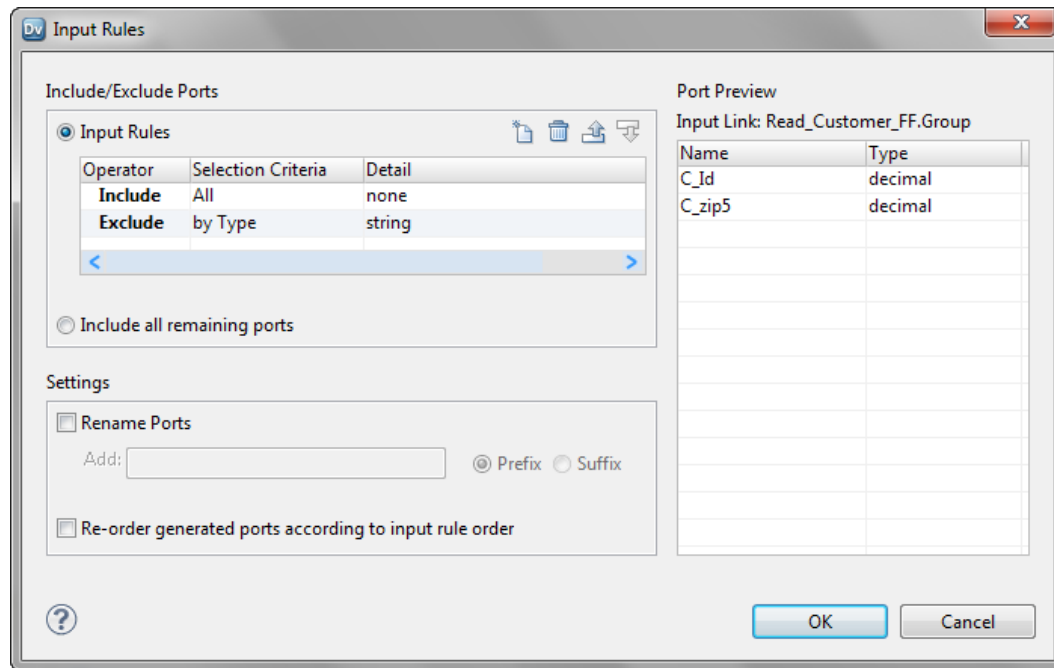
The following image shows the two dynamic ports in the Exp\_Output transformation.



3. Right-click the **From\_Read\_CUSTOMER\_FF** dynamic port, and select **Edit Input Rules**.  
The **Input Rules** dialog box appears.
4. Click the **New** icon to add an input rule.
5. Select **Exclude** in the **Operator** column.
6. Select **Type** in the **Selection Criteria** column.
7. Click the **Details** arrow to select the data type you want to include.
8. In the **Input Rule Detail: By Type** dialog box, select **string** data type from the list.

9. Verify the **Port Preview** area to ensure that string ports do not appear.

The following image shows the updated input rule and the ports in the **Port Preview** area of the **Input Rule** dialog box:





## Step 4. Configure the Write\_customerTrim\_FF Write Transformation

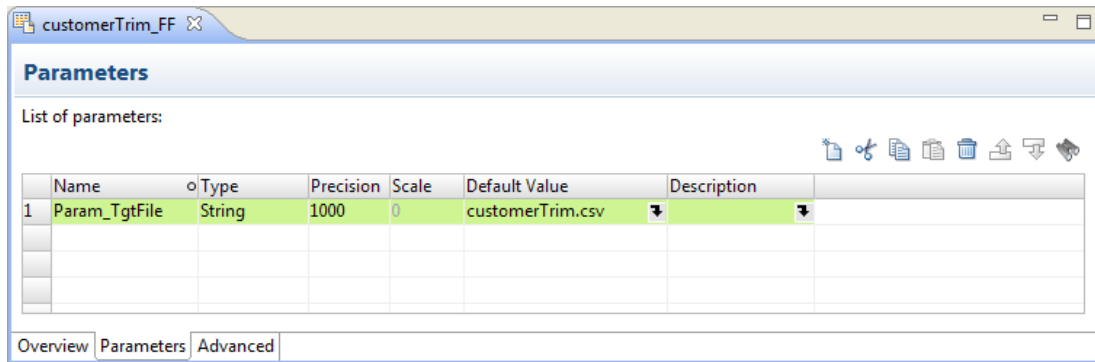
Create a customerTrim\_FF data object and configure it to use a parameter of type String for the output file name. Configure the Write\_customerTrim\_FF transformation to create target files at run time based on the columns from the Exp\_Output transformation.

### Configure the Data Object to Use a Parameter

Create a customerTrim\_FF data object to add as the Write transformation in the mapping. Configure the data object to use a parameter of type String for the output file name.

1. Create a customerTrim\_FF data object based on the customerTrim.csv file.
2. To use a parameter for the output file, perform the following steps:
  - a. In the **Parameters** tab of the data object, click the **New** button (  ) to create a new parameter.
  - b. In the **Name** column, change the parameter name as Param\_TgtFile.
  - c. In the **Default Value** column, click the **Open** button (  ).  
The **Edit Parameter Value** window appears.
  - d. Enter the default file name value as customerTrim.csv and click **OK**.
3. Save the customerTrim\_FF data object.

The following image shows the **Parameter** tab with the new parameter:



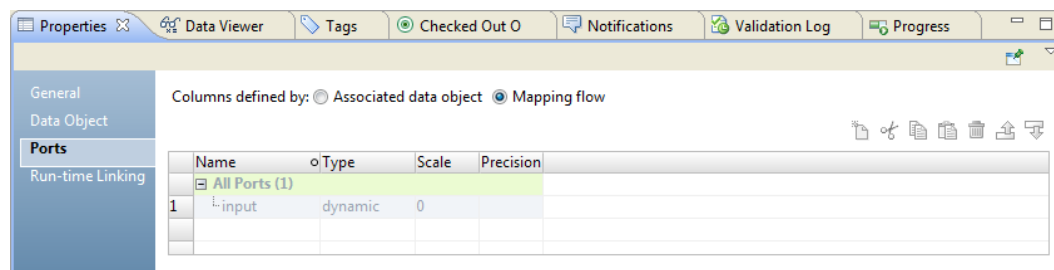
## Create Target Columns from the Mapping Flow

Add the Write transformation to the mapping and configure the Write\_customerTrim\_FF transformation to create target files at run time based on the columns from the Exp\_Output transformation.

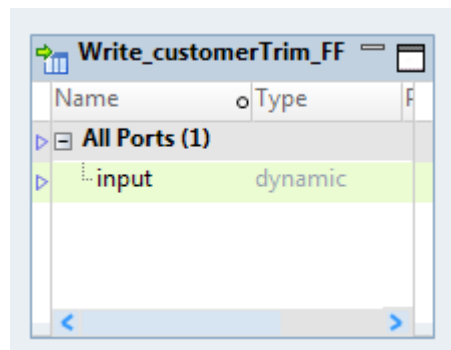
1. Add the customerTrim\_FF data object as the Write transformation to the mapping.
2. In the **Properties** view of the Write transformation, click the **Ports** tab.
3. Choose the **Mapping flow** option to define the columns for the target.

The Developer tool creates a dynamic port **input** in the Write\_customerTrim\_FF transformation.

The following image shows the **Ports** tab after you choose the option:



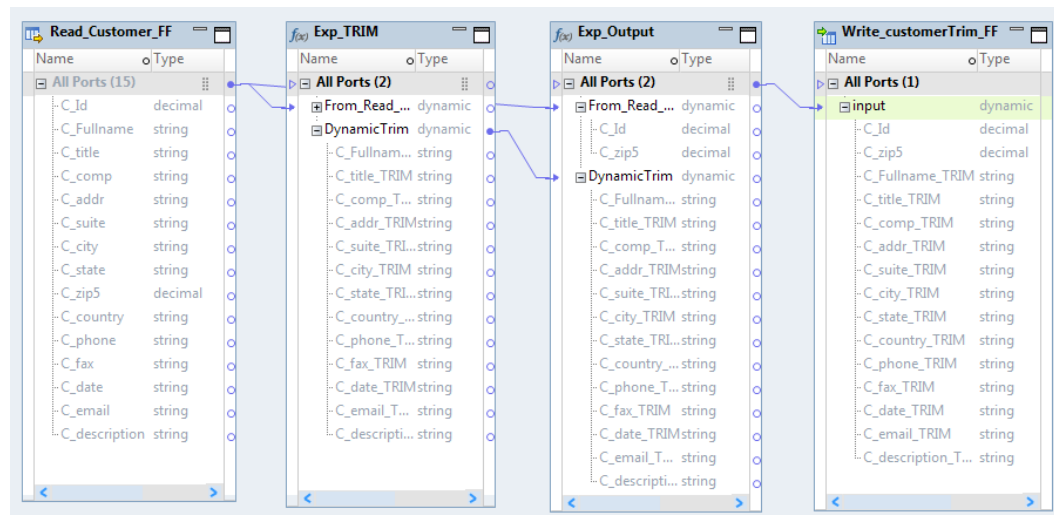
The following image shows the new dynamic port **input** in the Write\_customerTrim\_FF transformation:



- From the Exp\_Output transformation, drag the All Ports group to the input port in the Write\_customerTrim\_FF transformation.

The Developer tool creates a link and flows the columns from the All Ports group of the Exp\_Output transformation to the input dynamic port of the Write transformation.

The following image shows the m\_Replication\_Template mapping with the Write transformation configured:



## Step 5. Validate and Save the Mapping

Validate and run the m\_Replication\_Template mapping with the default parameter values for the source data object and target file to view the result.

- In the mapping editor, click **Edit > Validate**.
- When the mapping is valid, click **File > Save** to save the mapping.

## Step 6. Run the Dynamic Mapping Against Different Sources and Targets

After you develop the dynamic mapping, you can run the mapping to access different sources and write to different targets based on the parameter values.

### Run the Mapping for the Customer\_FF Source

Run the m\_Replication\_Template mapping with the default parameter values for the source data object and target file to view the result. The mapping reads from the Customer\_FF source file and writes to the customerTrim.csv target file.

- Click **Run > Mapping**.

The **Run Mapping** window displays the progress of the mapping run. The mapping runs and writes the output to the target file.

- To view the results written to the target file, navigate to the target directory on the system where Informatica services is installed:

```
<Informatica Installation Directory>\tomcat\bin\target
```

- Open the customerTrim.csv file to verify that the string values do not have spaces in the beginning and end.

Each line of the file lists data for the columns in the order that they appeared in the target object as C\_Id, C\_zip5, C\_Fullname, C\_title, C\_comp, and so on. For example, the first five lines of the file contain the following data where the blanks from the beginning and end of strings are removed:

```
1,22342,Smith John,Account Executive,DKR MANAGEMENT COMPANY INC,100 High Street,
5406,Anytown,TN,USA,4047668150,2124031386,31/08/1985,bwilliams@yahoo.com,ACTIVE
2,38103,Balasubramanian Krishna,Account Executive,EASTON & COMPANY,71 Congress Parkway,
789,Bangalore,Karnataka,India,4046345228,4151689756,29/10/1985,bmatthewc@univ.edu,ACTIVE
3,55103,Johnson Lars,Regional Sales Exec,GREATER BAY BANCORP,123 Snow St.,43543,St.
Paul,MN,USA,4046581534,6122945948,7/9/1992,ehpuniv.edu,INACTIVE
4,94116,Zogby Kevin,Regional Sales Exec,HEWLETT-PACKARD,317 29th. St.,5856,San
Francisco,CA,USA,4042662730,4155466814,7/8/1985,grobertwuniv.edu,ACTIVE
5,60606,Franklin Roosevelt,Sales Representative,JAYD TRADING,1511 Wacker Dr,
6334,Chicago,IL,USA,7703965851,2065075486,20/10/1982,trichard@univ.edu,INACTIVE
```

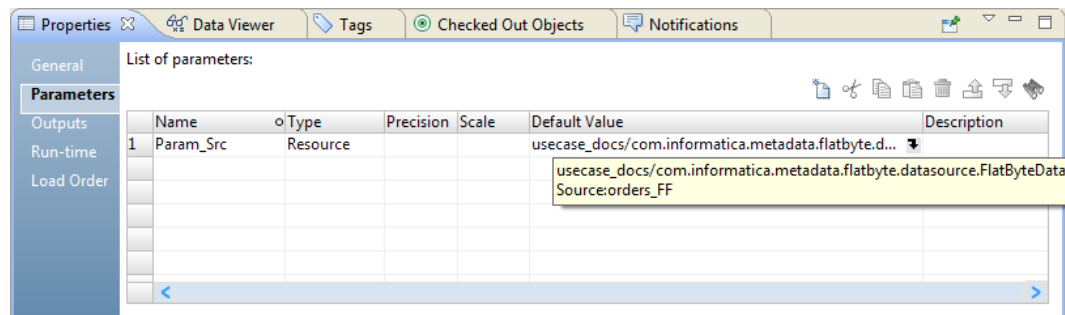
## Change the Parameter Values

Change the parameter values for the source data object and the output file name of the target data object.

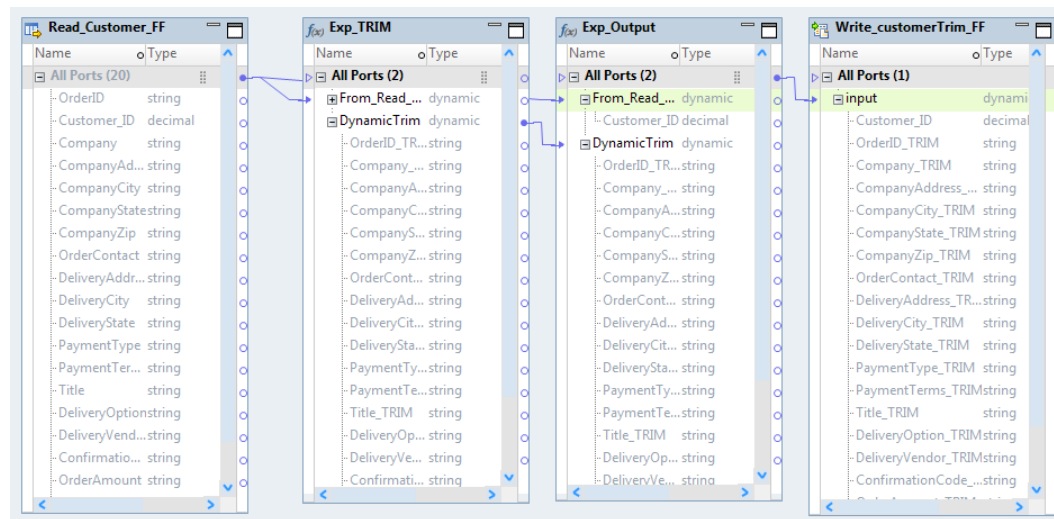
1. To change the parameter value for the source data object, perform the following steps:

- In the **Properties** view of the mapping, click the **Parameters** tab.
- Locate the `Param_Src` parameter for the source object.
- In the **Default Value** column, click the **Open** button (📄).
- The **Select Location** dialog box appears.
- Select the `orders_FF` data object.

The following image shows the **Parameter** tab of the mapping with the updated default value:



The following image shows the mapping that reflects the ports from the orders\_FF data object for the Read transformation. The dynamic ports reflect new generated ports.



2. To change the parameter value of the target file name, perform the following steps:
  - a. Open the customerTrim\_FF target data object.
  - b. In the **Parameters** tab of the data object, locate the Param\_TgtFile parameter for the target file name.
  - c. In the **Default Value** column, click the **Open** button (📄).
  - The **Edit Parameter Value** window appears.
  - d. Change the default file name value to ordersTrim.csv and click **OK**.

The following image shows the **Parameter** tab of the customerTrim\_FF data object with the updated default value:

The screenshot shows the **Parameters** tab for the **customerTrim\_FF** data object. It displays a table with the following parameters:

Name	Type	Precision	Scale	Default Value	Description
1 Param_TgtFile	String	1000	0	ordersTrim.csv	

The **Default Value** column for the **Param\_TgtFile** parameter is highlighted in green, and the **Open** button (📄) is visible next to it. The **Overview**, **Parameters**, and **Advanced** tabs are visible at the bottom.

## Run the Mapping for the orders\_FF Source

Validate the mapping and run the m\_ReplicationTemplate mapping for a different source and target. The mapping reads from the orders\_FF source file and writes to the ordersTrim.csv target file.

1. In the mapping editor, click **Edit > Validate**.
2. When the mapping is valid, click **File > Save** to save the mapping.
3. Click **Run > Mapping**.

The **Run Mapping** window displays the progress of the mapping run. The mapping runs and writes the output to the target file.



4. To view the results written to the target file, navigate to the target directory on the system where Informatica services is installed:

```
<Informatica Installation Directory>\tomcat\bin\target
```

5. Open the ordersTrim.csv file to verify that the string values do not have spaces in the beginning and end.

Each line of the file lists data for the columns in the order that they appeared in the target object as Customer\_Id, Order\_ID, Company, CompanyAddress, CompanyCity, and so on. For example, the first five lines of the file contain the following data where the blanks from the beginning and end of strings are removed:

```
10110085,O-5079,JOSEPHTHAL LYON & ROSS,96 FISHER ROAD,MAHWAH,NJ,7430,PARKE PERSLEY OR  
RAYFORD LECROY,96 FISHER ROAD,MAHWAH,NJ,American Express,CHARGE,Account  
Executive,UPA,United Parcel Service Air,44162,$21.00,Generic,O/L/B P/W L/S TAWNY  
SHIMMER .08 OZ.  
10110086,O-6658,NRCA,10255 W.HIGGINS RD.,ROSEMONT,IL,60018-5607,ROLANDA SORTO,10255  
W.HIGGINS RD.,ROSEMONT,IL,American Express,CHARGE,Account Executive,UPA,United Parcel  
Service Air,44163,$56.40,Generic,O-L.B PW LIPSTYLO LASTING PERFECTION .08 OZ.  
10110087,O-8195,POND EQUITIES,4522 FT. HAMILTON PKWY.,BROOKLYN,NY,11219,KONSTANTIN  
PEDDICORD,4522 FT. HAMILTON PKWY.,BROOKLYN,NY,American Express,CHARGE,Account  
Executive,UPA,United Parcel Service Air,44164,$78.00,Generic,O/L/B P/W L/S TAWNY SHIMMER  
LASTING PERFECTION LIPSTYLO TAWNY SHIMMER .08 OZ.  
10110088,O-9130,SCHRODER & COMPANY,787 SEVENTH AVENUE,NEW YORK,NY,10019,GIORGIA  
TWITCHELL,787 SEVENTH AVENUE,NEW YORK,NY,American Express,CHARGE,Account  
Executive,UPA,United Parcel Service Air,44165,$14.00,Generic,A/COL L PERFECTION L/S REF  
P SUPREME LASTING PERFECTION LIPSTYLO TAWNY SHIMMER .08 OZ.  
10110089,O-9352,YUASA TRADING COMPANY (AMERICA),150 EAST 52ND STREET,NEW YORK,NY,  
10005,STEFFI MCGLOWN,150 EAST 52ND STREET,NEW YORK,NY,American Express,CHARGE,Account  
Executive,UPA,United Parcel Service Air,44166,$54.00,Generic,O/L/B L PERFECTION REF  
LIPSTYLO COFFEE PEACH SUPREME .08 OZ.
```

## Author

Indra Sivakumar

## Acknowledgements

The author would like to acknowledge Lalitha Sundaramurthy and Indranil Roy for their contributions to this article.