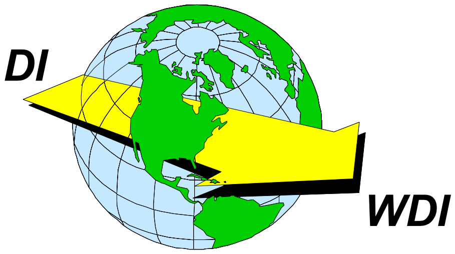
DataInterchange 4.1

Introduction to Data Transformation Mapping

The Next Generation



2002 User Conference

Objectives

Following successful completion of this module you will be able to:

- Create a new Data Transformation Map.
- Define a Source Dictionary and Source Object.
- Define a Target Dictionary and Target Object.
- Identify the four areas of the mapping screen.
- Recognize the mapping cues when performing drag and drop mapping.
- Create mapping Rules for Data Transformation maps.

Data Transformation Concepts

- **Send / Receive mapping:**
  Send: Application Data → Standard Data
  Receive: Application Data ← Standard Data

- **Data Transformation**
  Source → Target
  Where Source is the input file and Target is the output file. Each may be any of the supported data formats: EDI, XML, Raw Data, C&D, or Comma Separated Values

Data Transformation

- Variables: Global, Local, Special
- Literals – Quoted numeric or character string
- Comments – Comment Node Groups
- Keywords – Including Boolean (True/False)
- Paths – Identify source and target elements
- Data Types – Character, Integer, Real, Boolean, Binary
- Expressions – Arithmetic, Logical, Comparison, Unary
- Commands – Command Groups - Error, MapTo, SetProperty
- Functions – Char, Concat, Date, DateCnv, Find, etc.
- Properties – Envelope elements or XML Prolog

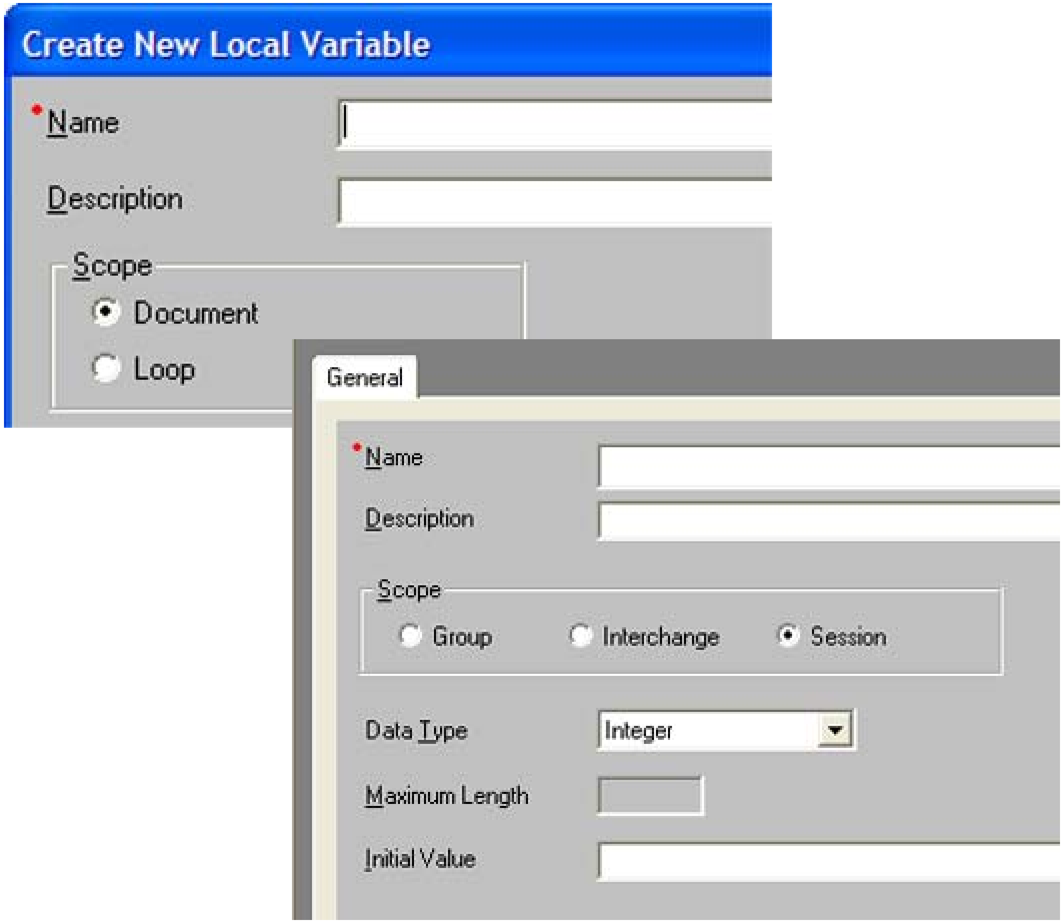
Variable Names

- **Up to 30 characters**
- **Letters, numbers, @, $, #, _ (underscore)**
- **Cannot begin with “DI”, @, $, #, or _**
- **Not case sensitive**
- **Internal, temporary variables beginning with $R may appear in messages, but will not be seen in the map.**

Variable Scope

- ★ **Local Variables**
  - **Document**
  - **Loop**

- ★ **Global Variables**
  - **Group**
  - **Interchange**
  - **Session**



Create New Local Variable

*Name

Description

Scope
● Document
○ Loop

General

*Name

Description

Scope
○ Group ○ Interchange ● Session

Data Type: Integer

Maximum Length

Initial Value

Special Variables

- *DIOutFile* – May be used to specify the file name for the output file.
  (Up to 8 characters)

- *DIOutType* – May be used to specify the file type for the output file. (2 characters) May be *TS, TD, TM, VS, TX,* or *PG.*

Literals

- ★ **Character Strings**

  Enclosed in quotes (*“Virtual Realty”*) or apostrophes (*‘DataInterchange 4.1’*) or containing quotes or apostrophes in the data (*“don’t”* or *‘He said, “yes!”’*)

- ★ **Numeric Values**

  3.141592737

  -22

Keywords

- ***True***
- ***False***

Used to test and set Boolean values.

Mapping commands, logical operators, comparison operators, and arithmetic operators are also considered keywords.

Paths

To identify source and target elements in mapping commands, we can specify Paths or have DataInterchange generate them for us by using drag and drop mapping.

- **Example of a path defining an EDI element:**

  \T 2\L 130\S CUR 135\E 100 2\\

  (X12 V4050 – 850 – Table 2, Loop 130, CUR Segment at Position 135, Element 100 at Position 2)

- **Example of a path defining an XML element:**

  \Root\Loop\Item\Quantity\\

Slashes separate the identifiers in the path.
The Path Definition is terminated with two slashes.

Expressions and Assignments

- Expression:
  token operator token
  where token is a variable, constant, path, or function

- Assignment:
  target = expression
  where target is a variable or element

Logical Operators

- *AND* – Logical AND – Both values must be True for result to be True.

- *OR* – If either value is True, result is True.

- *NOT* or *!* (Exclamation Point) – Reverses Boolean result – True becomes False and False becomes True.

Comparison Operators

- ***EQ*** **(=) – Equal To**
- ***GT*** **(>) – Greater Than**
- ***LT*** **(<) – Less Than**
- ***NE*** **(!= or <>) – Not Equal To**
- ***GE*** **(>=) – Greater Than or Equal To**
- ***LE*** **(<=) – Less Than or Equal To**

Arithmetic Operators

- - (Unary) – Reverses the Sign of a Value
- * – Multiply
- / – Divide
- % – Modulus
- + – Addition
- - – Subtraction

Conditional Commands

```
If (condition)
    commands
    Elseif (condition)
         commands
         Elseif (condition)
                  commands
    Else
         commands
Endif
```

Error Command

Error(level,code,message)

where:

- level – severity *0, 1,* or *2* (extended error code and JCL condition code)
- code – unique error code *5000* to *5999*
- message – text message – message to be written as a TR0026 message

MapTo Command

MapTo (targetpath,expression)

where:

targetpath – path being mapped in the target document

expression (optional) – expression to be evaluated with the result mapped to the target element

Assignment

- For simple elements, MapTo is equivalent to an assignment statement:

  targetpath = (current-source-element)

  or

  targetpath = expression

Qualify Command

Qualify (boolExpr)

Mappings for this qualification are processed when the Boolean expression is true.

Examples:

Qualify (NameQual = 'ST')

***Qualify(Occurrence() = 2 AND StrComp(\Table 1\
310 O N1 Loop\310 O N1\1 M 98\\,"ZZ") = 0)***

The *Default* command specifies commands to be executed if none of the Qualify expressions evaluate to True.

SetProperty Command

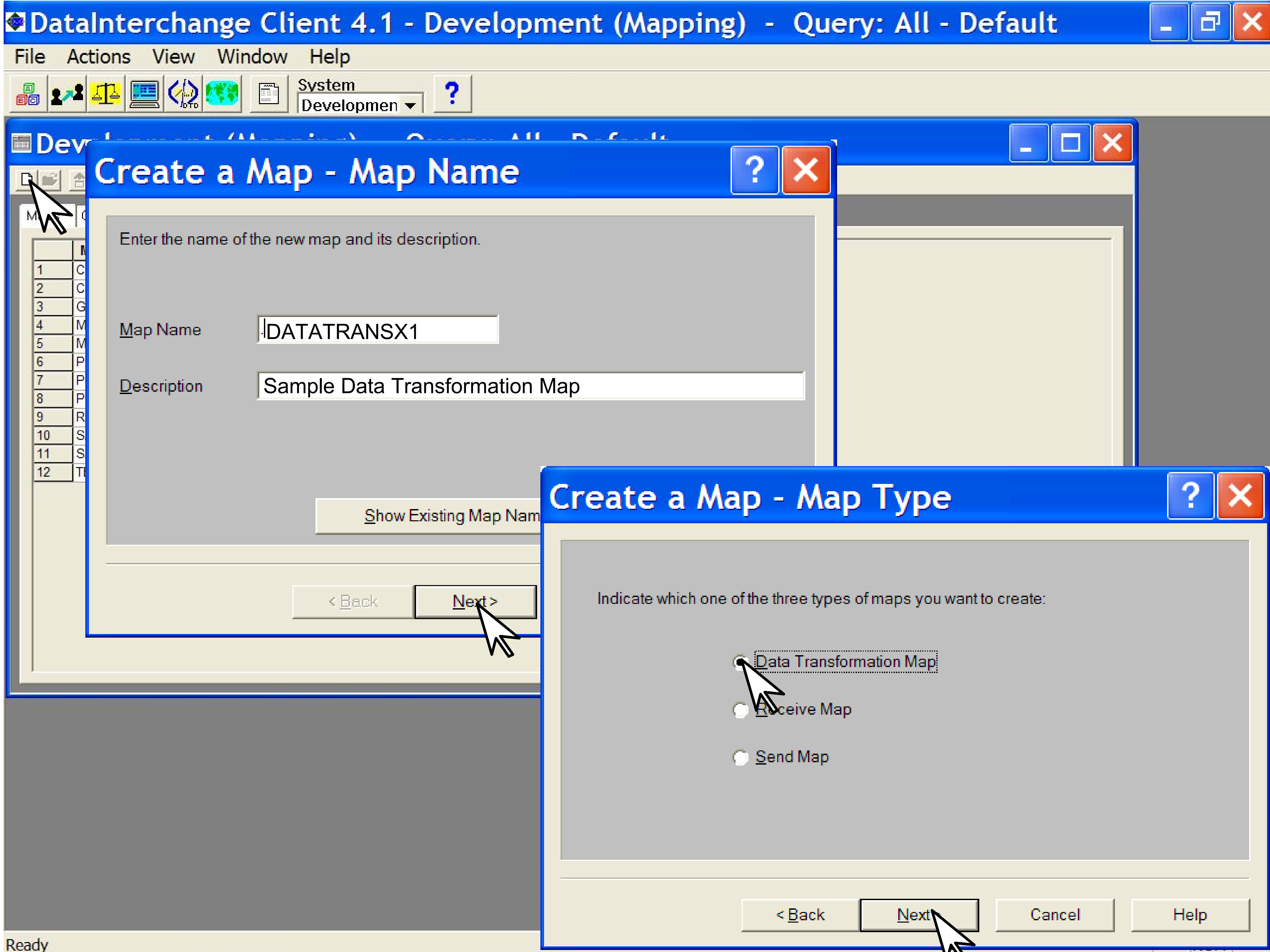
- **Purpose: Sets values for the XML prolog or EDI envelope elements**
- **Syntax:**
  ***SetProperty*(propertyName,propertyValue)**
- **Where**
  PropertyNames represent EDI envelope elements or the XML Prolog
- **Sample Property Names:**
  IchgCtlNum, ISA05, DIProlog
- **Example of SetProperty:**
  SetProperty(GrpAppSndrId,'MegaMicro')

GetProperty Function

- Purpose: Retrieves values from the XML prolog or EDI envelope elements
- Syntax:
  target = *GetProperty*(propertyName)
- Where
  PropertyNames represent EDI envelope elements or the XML Prolog
- Sample Property Names:
  IchgCtlNum, ISA05, DIProlog
- Example of GetProperty:
  AppSender = *GetProperty(GrpAppSndrId)*

Functions

- Char
- Concat
- Created
- Date
- DateCnv
- Find
- Found
- GetProperty
- HexEncode
- HexDecode
- IsEmpty
- Left
- Length
- Lower
- Number
- NumFormat
- Occurrence
- Overlay
- Right
- Round
- StrComp
- StrCompI
- StrCompN
- StrCompNI
- SubString
- Time
- Translate
- TrimLeft
- TrimRight
- Truncate
- Upper
- Validate


DataInterchange Client 4.1 - Development (Mapping) - Query: All - Default
File
Actions
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Ready

Create a Map - Map Name

Enter the name of the new map and its description.

Map Name: DATATRANSX1

Description: Sample Data Transformation Map

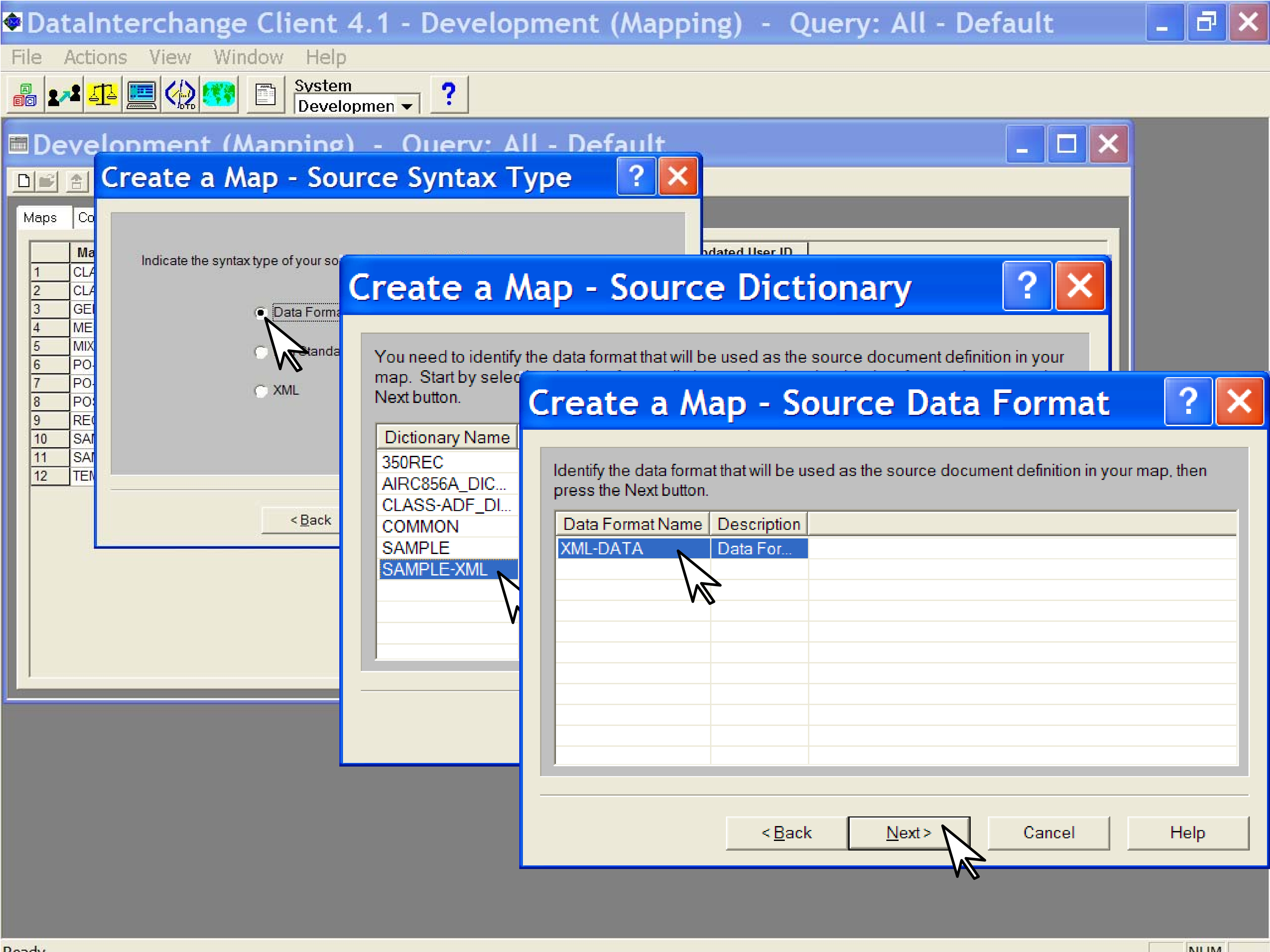
Create a Map - Map Type

Indicate which one of the three types of maps you want to create:

● Data Transformation Map

○ Receive Map

○ Send Map


DataInterchange Client 4.1 - Development (Mapping) - Query: All - Default
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Developmen
Development (Mapping) - Query: All - Default
Maps
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Create a Map - Source Syntax Type
Data Forma
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Create a Map - Source Dictionary
Create a Map - Source Data Format
< Back
Next >
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Help
Ready
NUM

	Ma
1	CLA
2	CLA
3	GEI
4	ME
5	MIX
6	PO
7	PO
8	POS
9	REC
10	SAI
11	SAI
12	TEM

Indicate the syntax type of your so

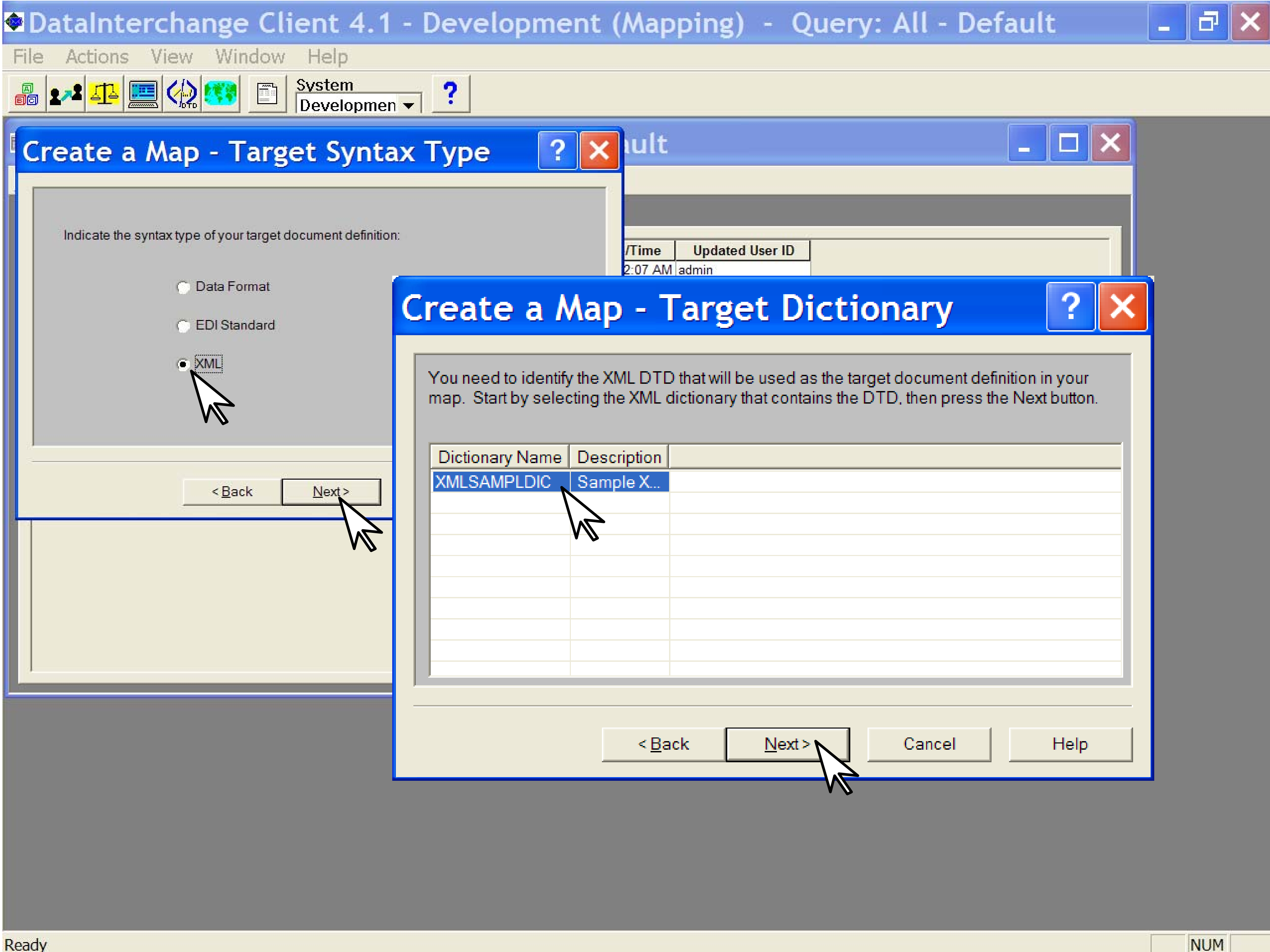
● Data Forma
○ Standa
○ XML

You need to identify the data format that will be used as the source document definition in your map. Start by selec
Next button.

Dictionary Name
350REC
AIRC856A_DIC...
CLASS-ADF_DI...
COMMON
SAMPLE
SAMPLE-XML

Identify the data format that will be used as the source document definition in your map, then press the Next button.

Data Format Name	Description
XML-DATA	Data For...



DataInterchange Client 4.1 - Development (Mapping) - Query: All - Default
File Actions View Window Help
System
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ult
/Time
Updated User ID
2:07 AM
admin
Ready
NUM

Create a Map - Target Syntax Type

Indicate the syntax type of your target document definition:

○ Data Format

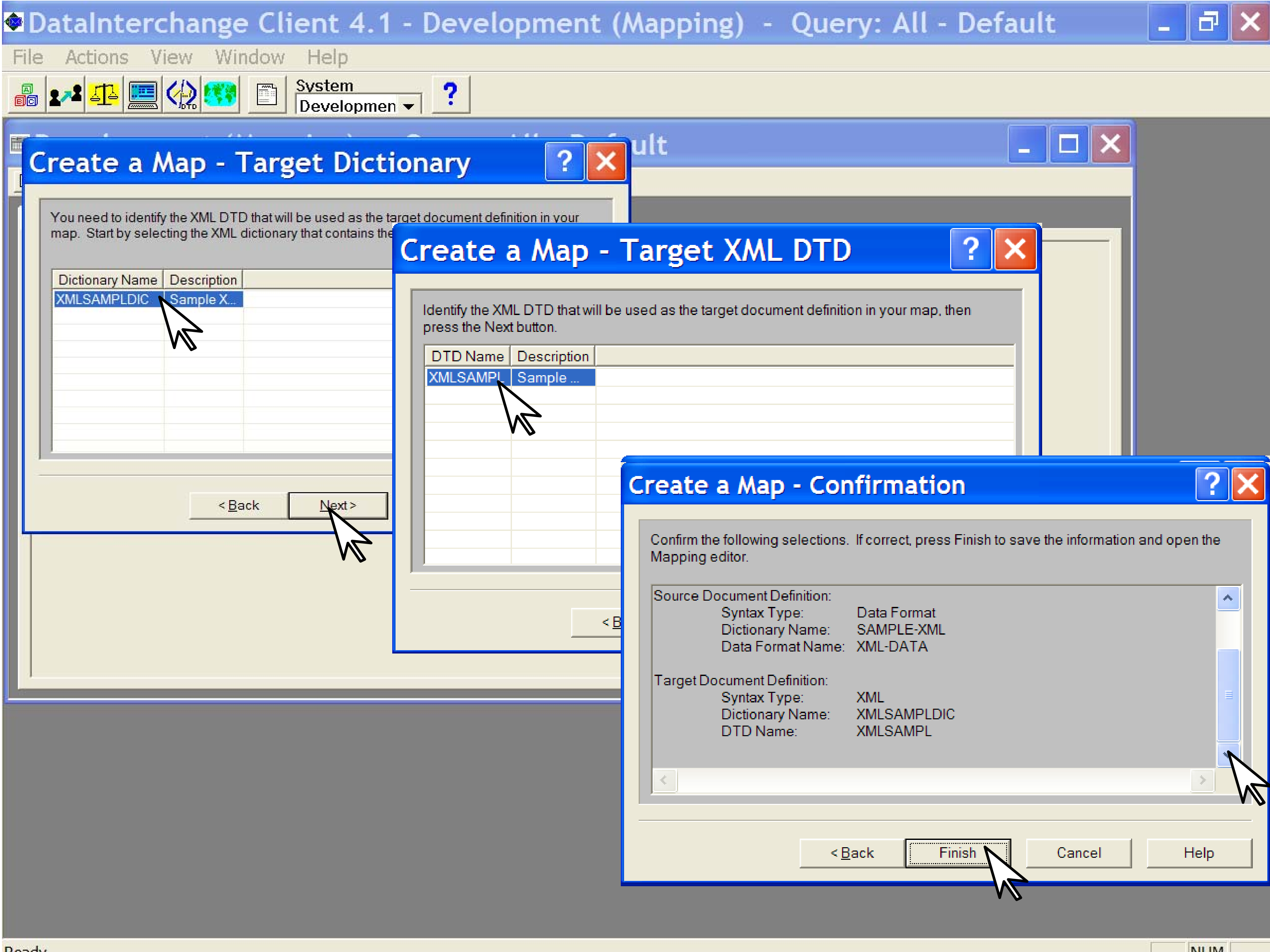
○ EDI Standard

● XML

Create a Map - Target Dictionary

You need to identify the XML DTD that will be used as the target document definition in your map. Start by selecting the XML dictionary that contains the DTD, then press the Next button.

Dictionary Name	Description
XMLSAMPLDIC	Sample X...


DataInterchange Client 4.1 - Development (Mapping) - Query: All - Default
File
Actions
View
Window
Help
System
Developmen
?
Create a Map - Target Dictionary
< Back
Next >
Create a Map - Target XML DTD
< B
Create a Map - Confirmation
< Back
Finish
Cancel
Help
Ready
NUM

You need to identify the XML DTD that will be used as the target document definition in your map. Start by selecting the XML dictionary that contains the

Dictionary Name	Description
XMLSAMPLDIC	Sample X...

Identify the XML DTD that will be used as the target document definition in your map, then press the Next button.

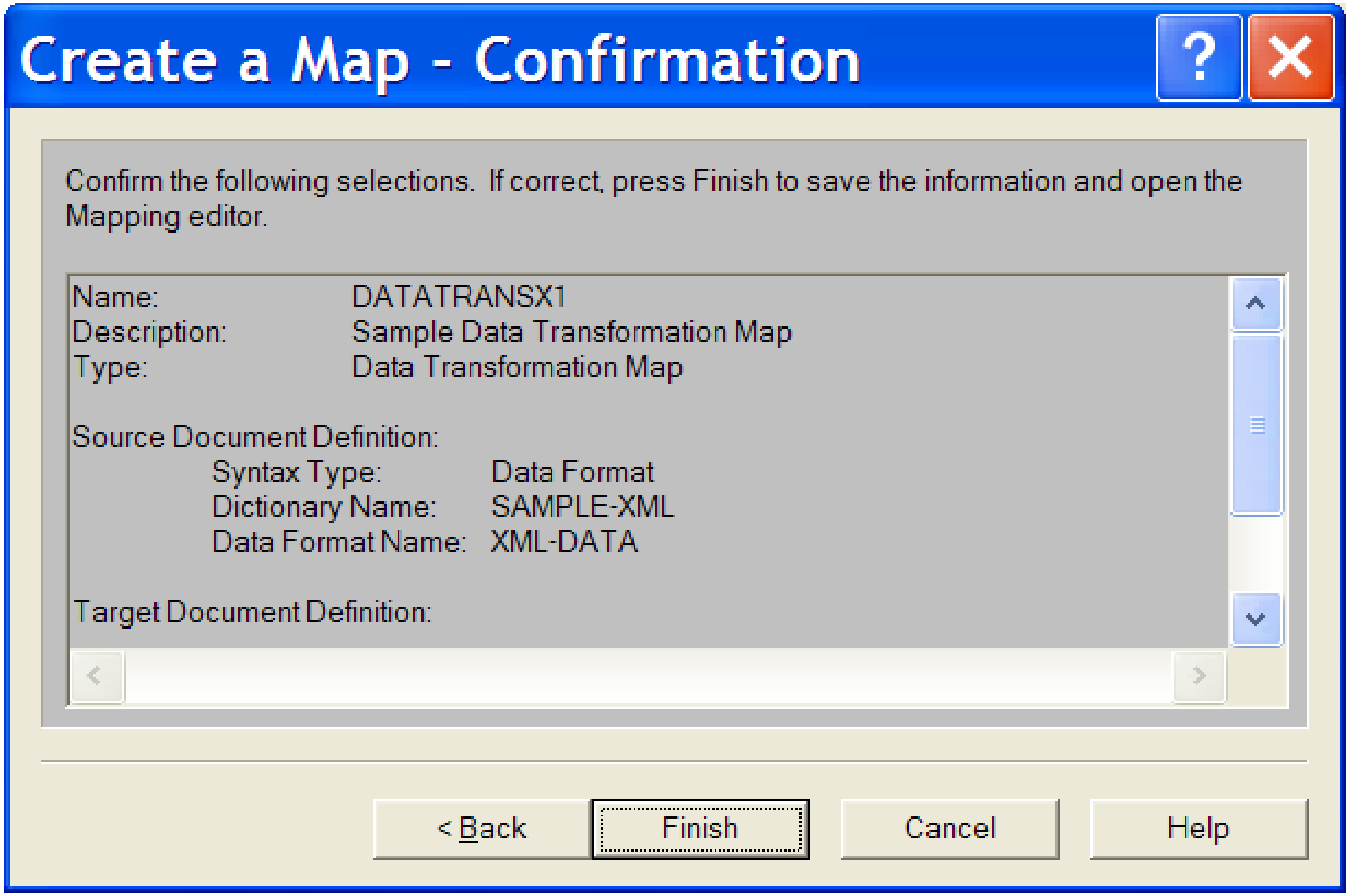
DTD Name	Description
XMLSAMPL	Sample ...

Confirm the following selections. If correct, press Finish to save the information and open the Mapping editor.

```
Source Document Definition:
          Syntax Type:          Data Format
          Dictionary Name:      SAMPLE-XML
          Data Format Name:     XML-DATA

Target Document Definition:
          Syntax Type:          XML
          Dictionary Name:      XMLSAMPLDIC
          DTD Name:             XMLSAMPL
```

Create a Map - Confirmation

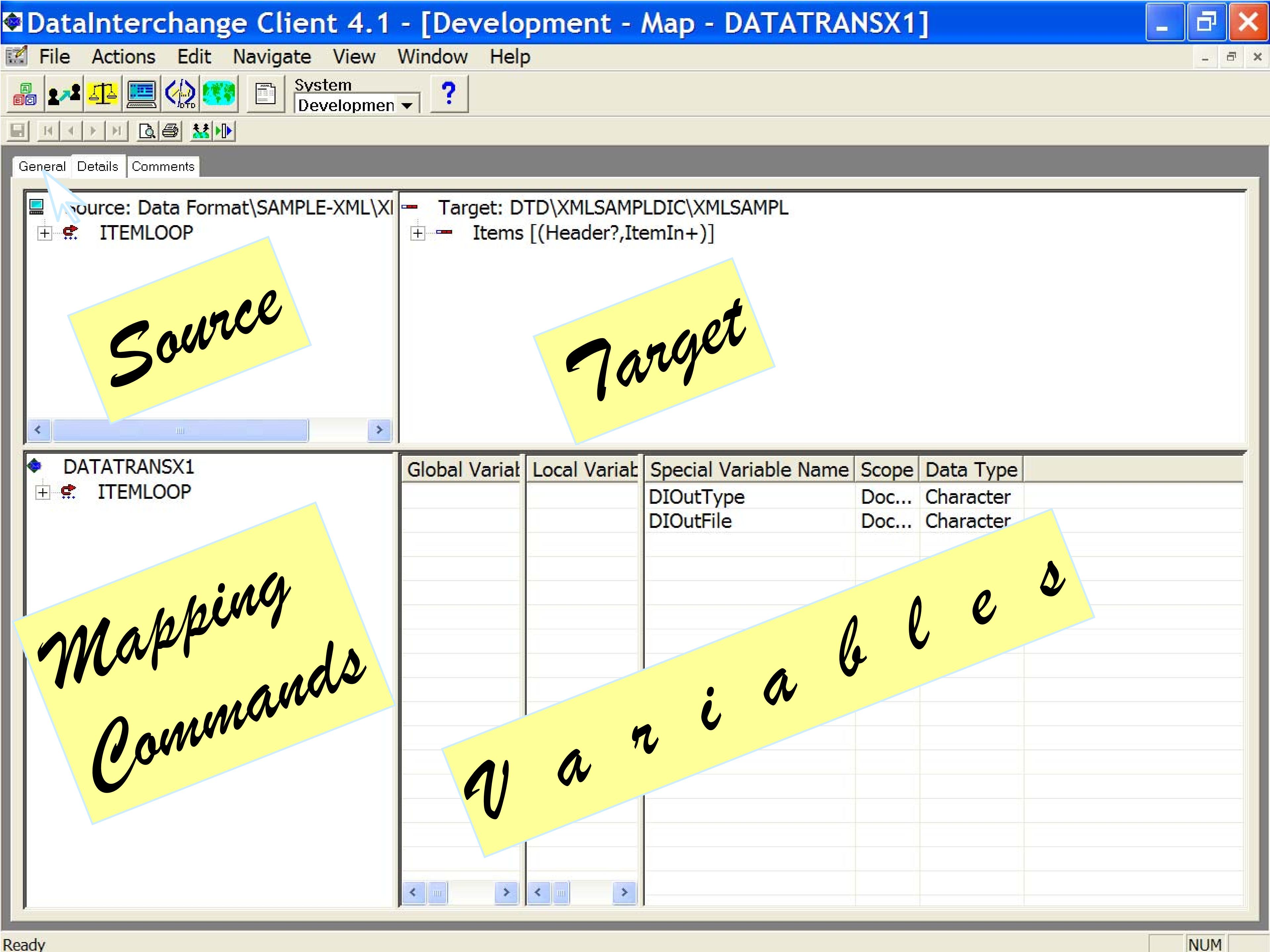


Confirm the following selections. If correct, press Finish to save the information and open the Mapping editor.

```
Name:                DATATRANSX1
Description:         Sample Data Transformation Map
Type:                Data Transformation Map

Source Document Definition:
          Syntax Type:          Data Format
          Dictionary Name:      SAMPLE-XML
          Data Format Name:     XML-DATA

Target Document Definition:
```



Source: Data Format\SAMPLE-XML\XI
ITEMLOOP

Target: DTD\XMLSAMPLDIC\XMLSAMPL
Items [(Header?,ItemIn+)]

DATATRANSX1
ITEMLOOP

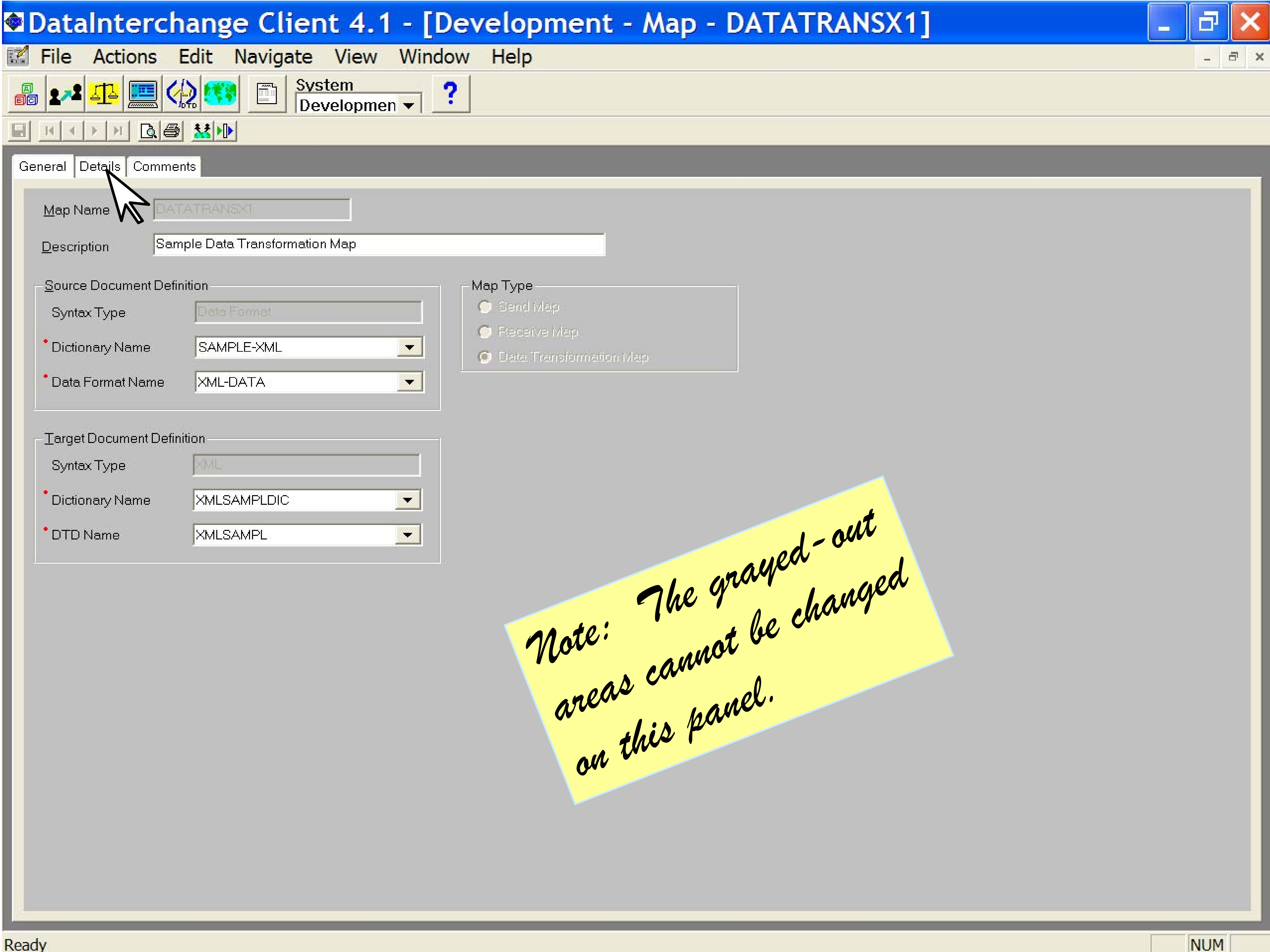
Global Variat	Local Variat	Special Variable Name	Scope	Data Type
		DIOutType	Doc...	Character
		DIOutFile	Doc...	Character

Source

Target

Mapping Commands

Variables



Map Name: DATATRANSX1

Description: Sample Data Transformation Map

Source Document Definition

- Syntax Type: Data Format
- Dictionary Name: SAMPLE-XML
- Data Format Name: XML-DATA

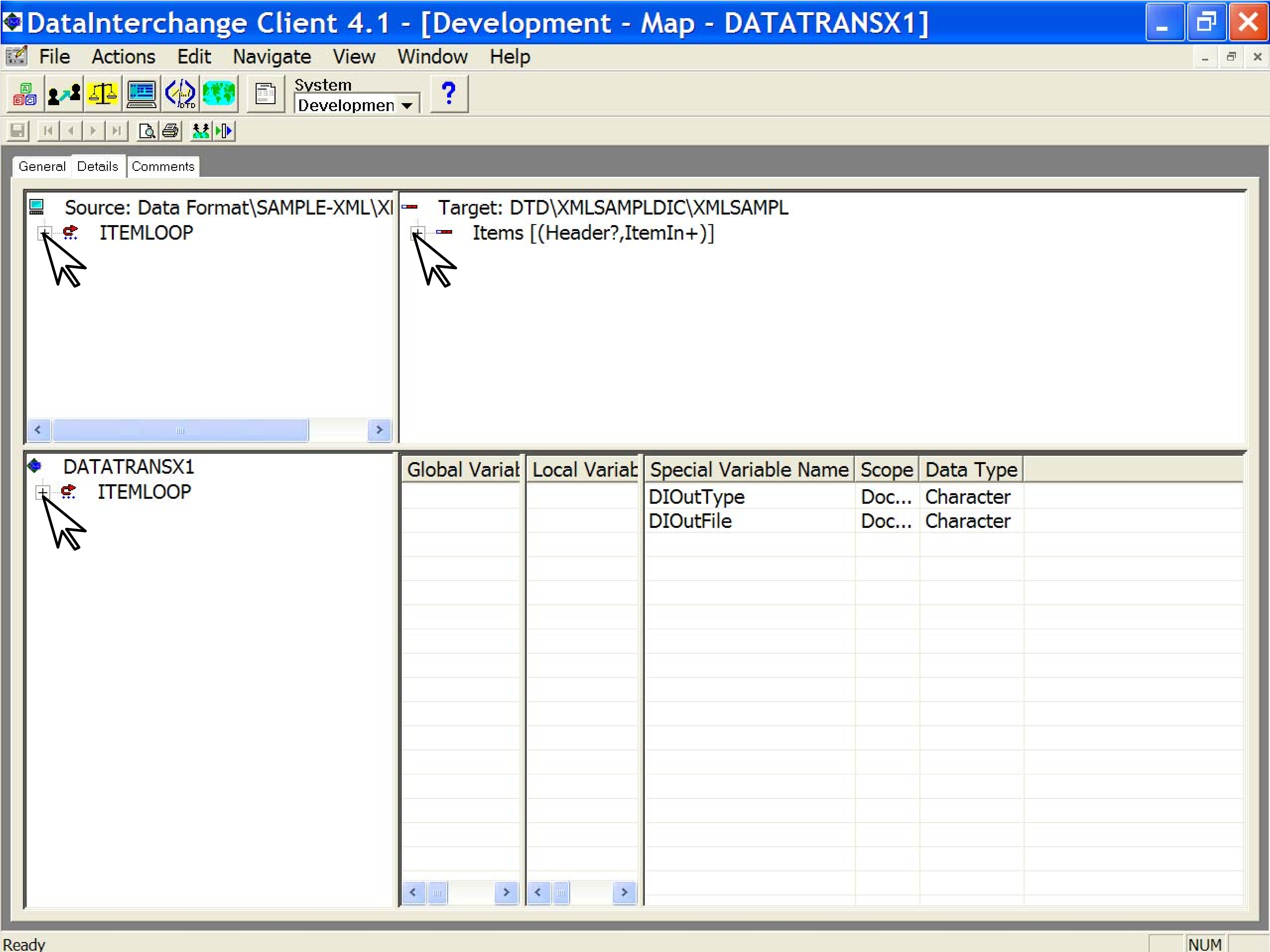
Map Type

- ○ Send Map
- ○ Receive Map
- ● Data Transformation Map

Target Document Definition

- Syntax Type: XML
- Dictionary Name: XMLSAMPLDIC
- DTD Name: XMLSAMPL

Note: The grayed-out areas cannot be changed on this panel.



Source: Data Format\SAMPLE-XML\XI

ITEMLOOP

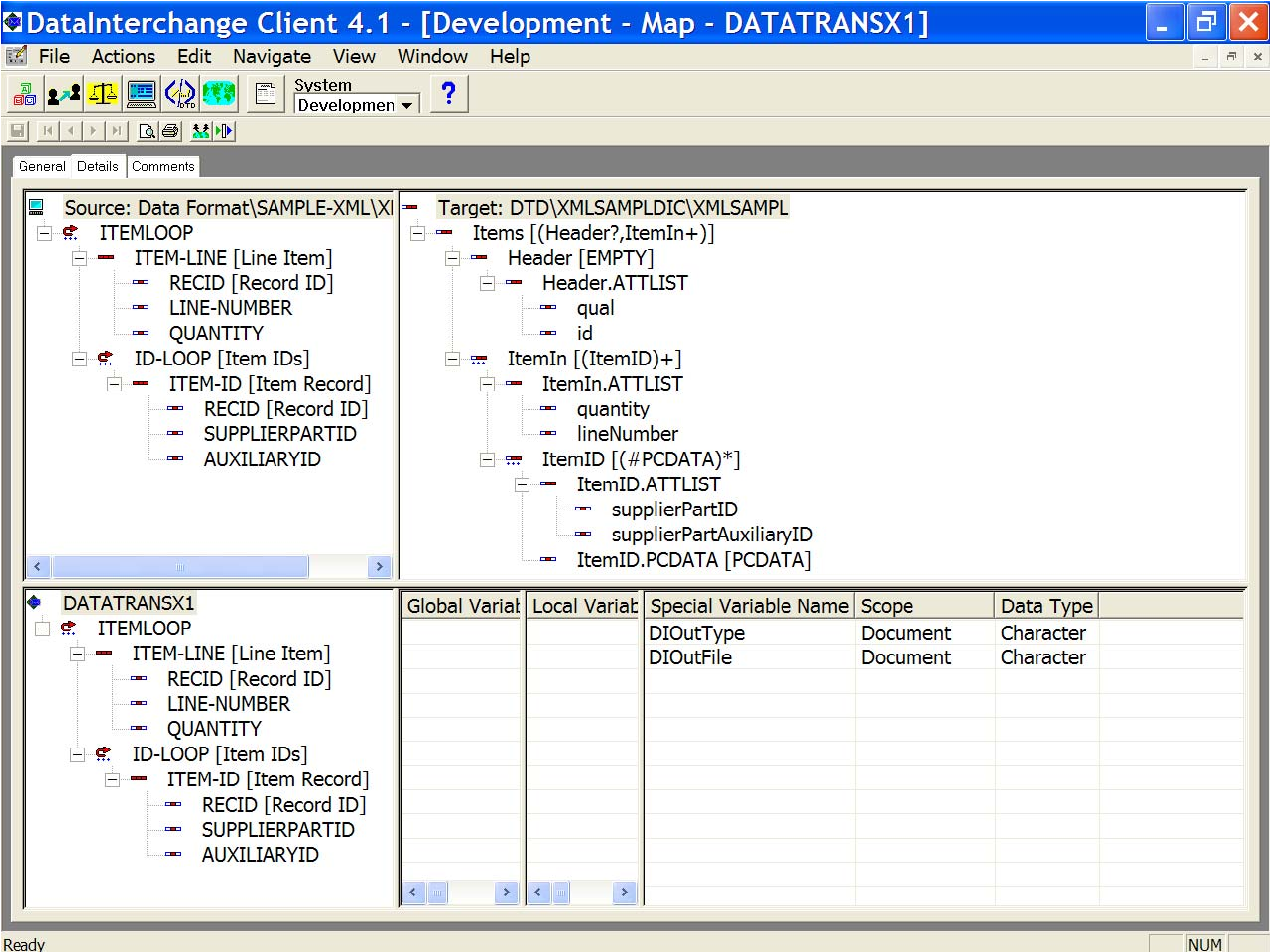
Target: DTD\XMLSAMPLDIC\XMLSAMPL

Items [(Header?,ItemIn+)]

DATATRANSX1

ITEMLOOP

Global Variat	Local Variat	Special Variable Name	Scope	Data Type
		DIOutType	Doc...	Character
		DIOutFile	Doc...	Character



```
Source: Data Format\SAMPLE-XML\XI
  ITEMLOOP
    ITEM-LINE [Line Item]
      RECID [Record ID]
      LINE-NUMBER
      QUANTITY
    ID-LOOP [Item IDs]
      ITEM-ID [Item Record]
        RECID [Record ID]
        SUPPLIERPARTID
        AUXILIARYID
```

```
Target: DTD\XMLSAMPLDIC\XMLSAMPL
  Items [(Header?,ItemIn+)]
    Header [EMPTY]
      Header.ATTLIST
        qual
        id
    ItemIn [(ItemID)+]
      ItemIn.ATTLIST
        quantity
        lineNumber
      ItemID [(#PCDATA)*]
        ItemID.ATTLIST
          supplierPartID
          supplierPartAuxiliaryID
        ItemID.PCDATA [PCDATA]
```

```
DATATRANSX1
  ITEMLOOP
    ITEM-LINE [Line Item]
      RECID [Record ID]
      LINE-NUMBER
      QUANTITY
    ID-LOOP [Item IDs]
      ITEM-ID [Item Record]
        RECID [Record ID]
        SUPPLIERPARTID
        AUXILIARYID
```

Global Variat	Local Variat	Special Variable Name	Scope	Data Type
		DIOutType	Document	Character
		DIOutFile	Document	Character

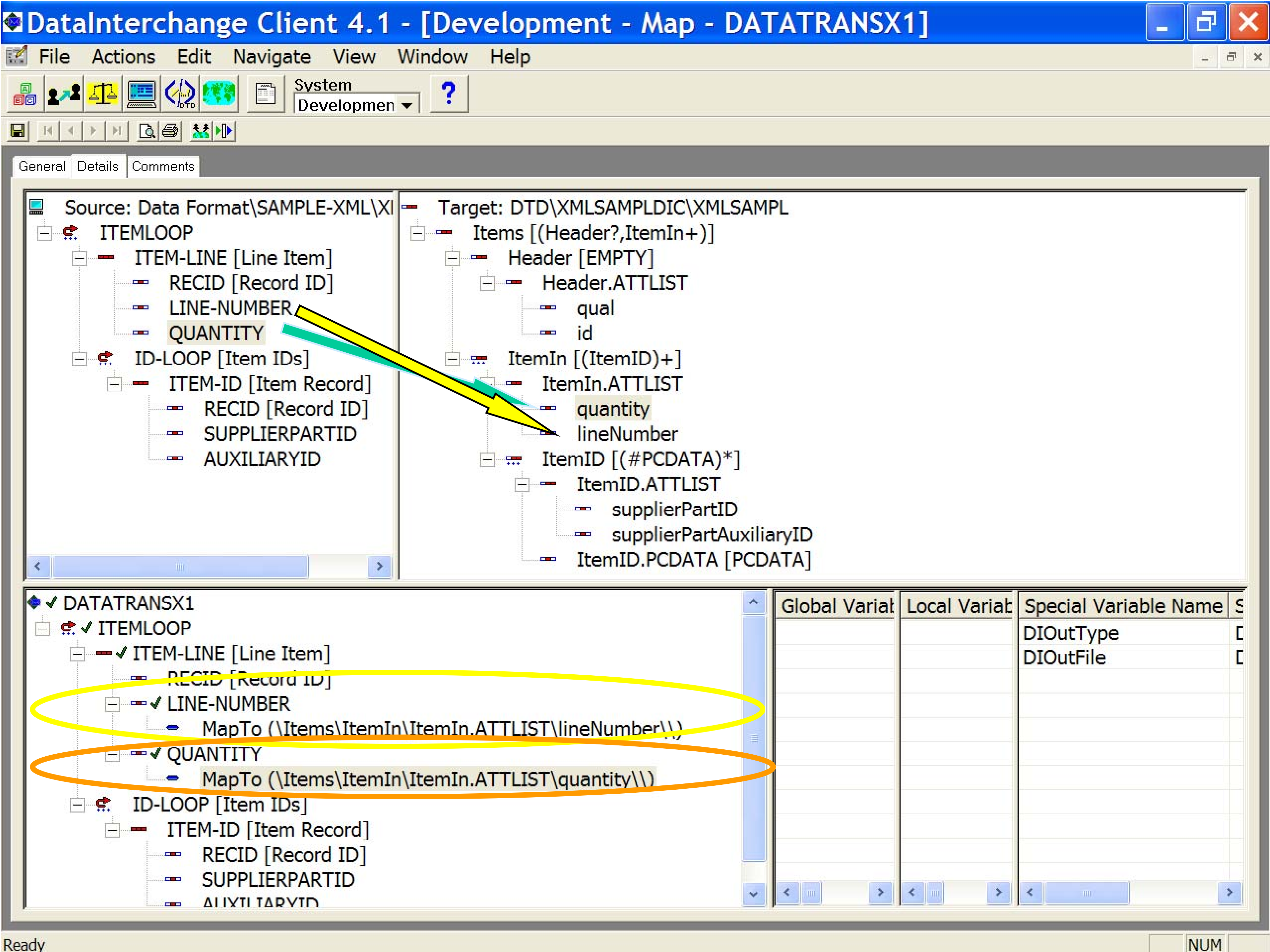
Drag and Drop Mapping

- Select and drag an element from the source pane and drop it on the corresponding element in the target pane.

- Valid target elements will be highlighted when the cursor is over them, if the element is not highlighted, it is not a valid target.

- Compound elements will expand after the cursor is held over them momentarily.

- The window will scroll when the cursor is brought to the edge of the window.



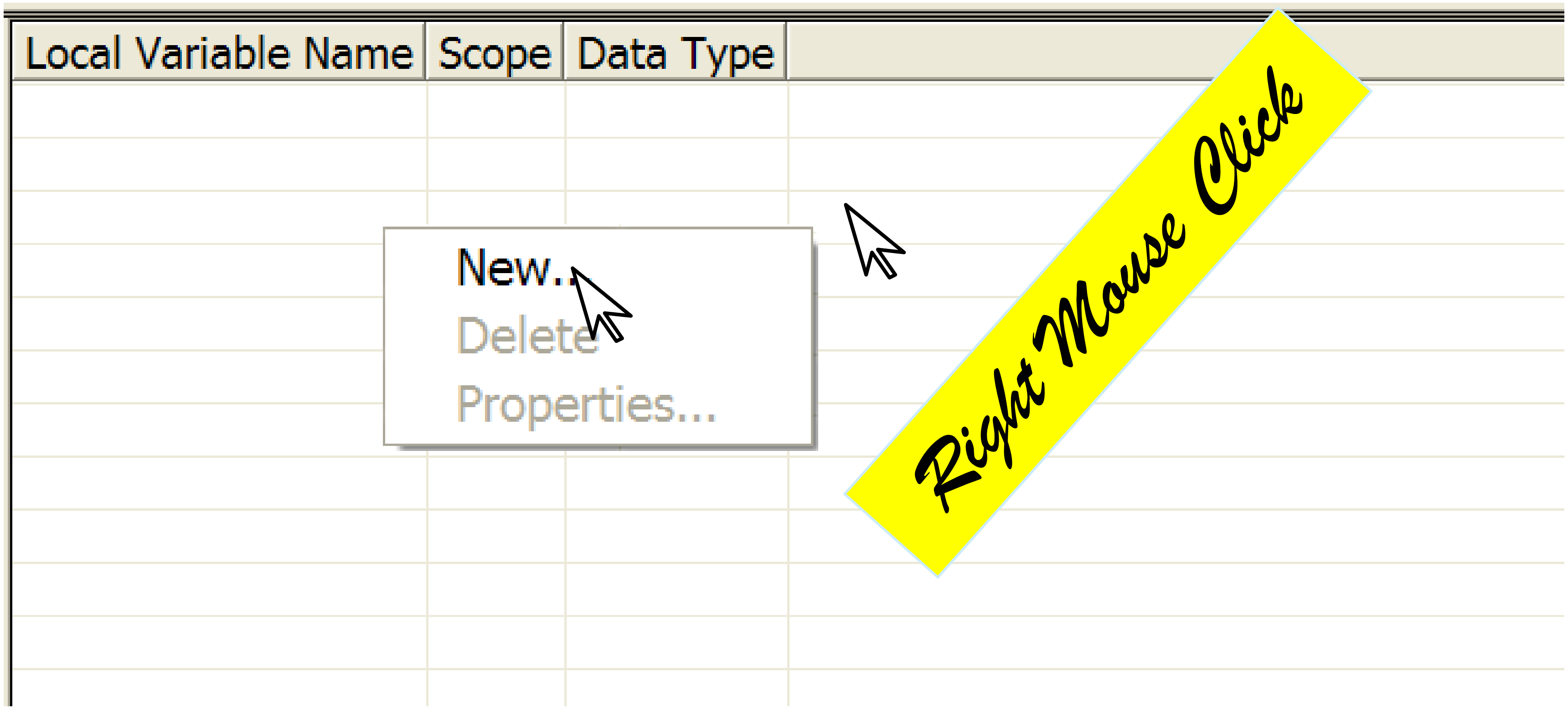
```
Source: Data Format\SAMPLE-XML\XI
  ITEMLOOP
    ITEM-LINE [Line Item]
      RECID [Record ID]
      LINE-NUMBER
      QUANTITY
    ID-LOOP [Item IDs]
      ITEM-ID [Item Record]
        RECID [Record ID]
        SUPPLIERPARTID
        AUXILIARYID
```

```
Target: DTD\XMLSAMPLDIC\XMLSAMPL
  Items [(Header?,ItemIn+)]
    Header [EMPTY]
      Header.ATTLIST
        qual
        id
    ItemIn [(ItemID)+]
      ItemIn.ATTLIST
        quantity
        lineNumber
      ItemID [(#PCDATA)*]
        ItemID.ATTLIST
          supplierPartID
          supplierPartAuxiliaryID
        ItemID.PCDATA [PCDATA]
```

```
DATATRANSX1
  ITEMLOOP
    ITEM-LINE [Line Item]
      RECID [Record ID]
      LINE-NUMBER
        MapTo (\Items\ItemIn\ItemIn.ATTLIST\lineNumber\\)
      QUANTITY
        MapTo (\Items\ItemIn\ItemIn.ATTLIST\quantity\\)
    ID-LOOP [Item IDs]
      ITEM-ID [Item Record]
        RECID [Record ID]
        SUPPLIERPARTID
        AUXILIARYID
```

Special Variable Name
DIOutType
DIOutFile

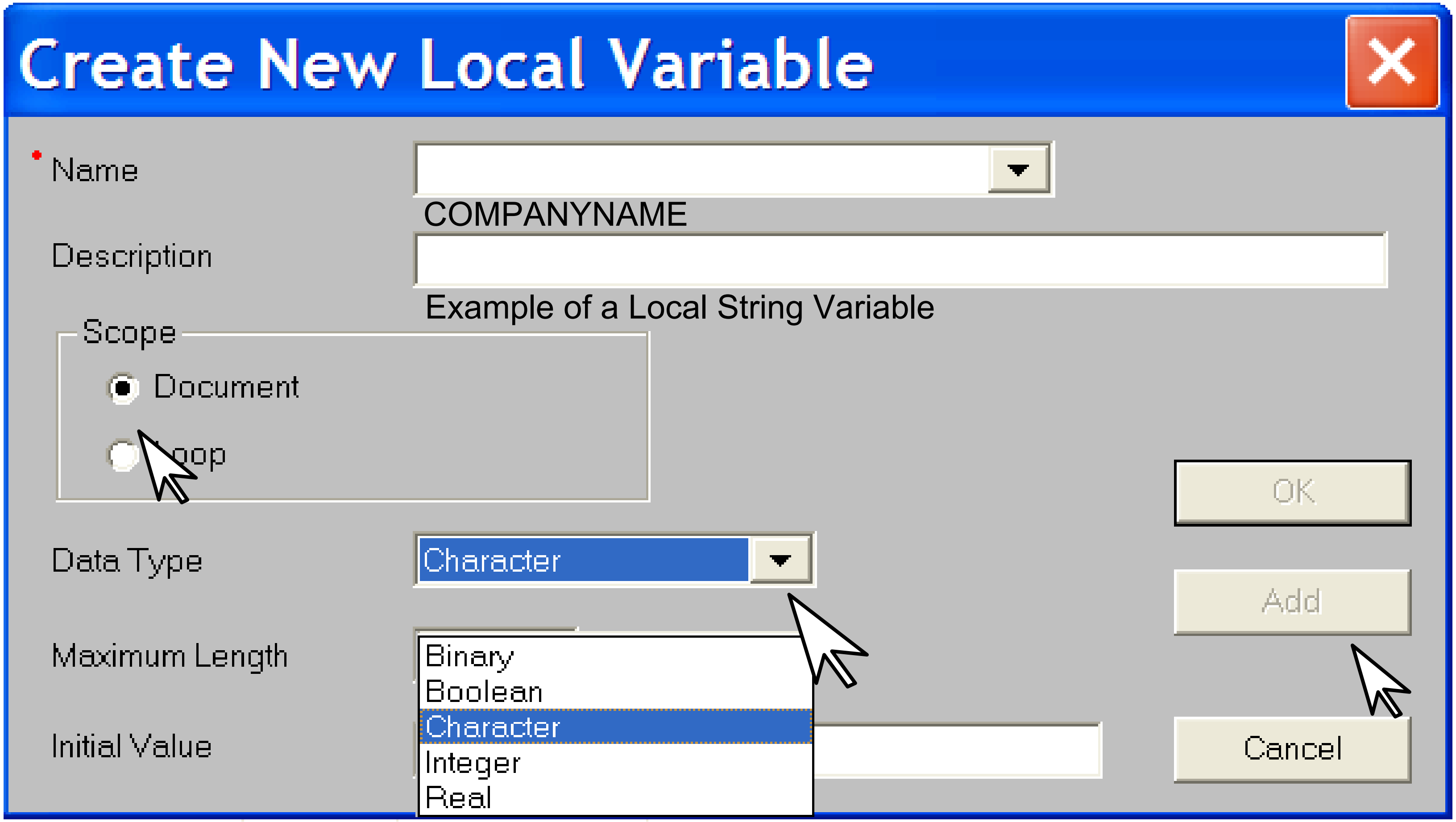
Local Variables



Local Variable Name	Scope	Data Type

Right Mouse Click

Defining a New Local Variable



Create New Local Variable

Name: COMPANYNAME

Description: Example of a Local String Variable

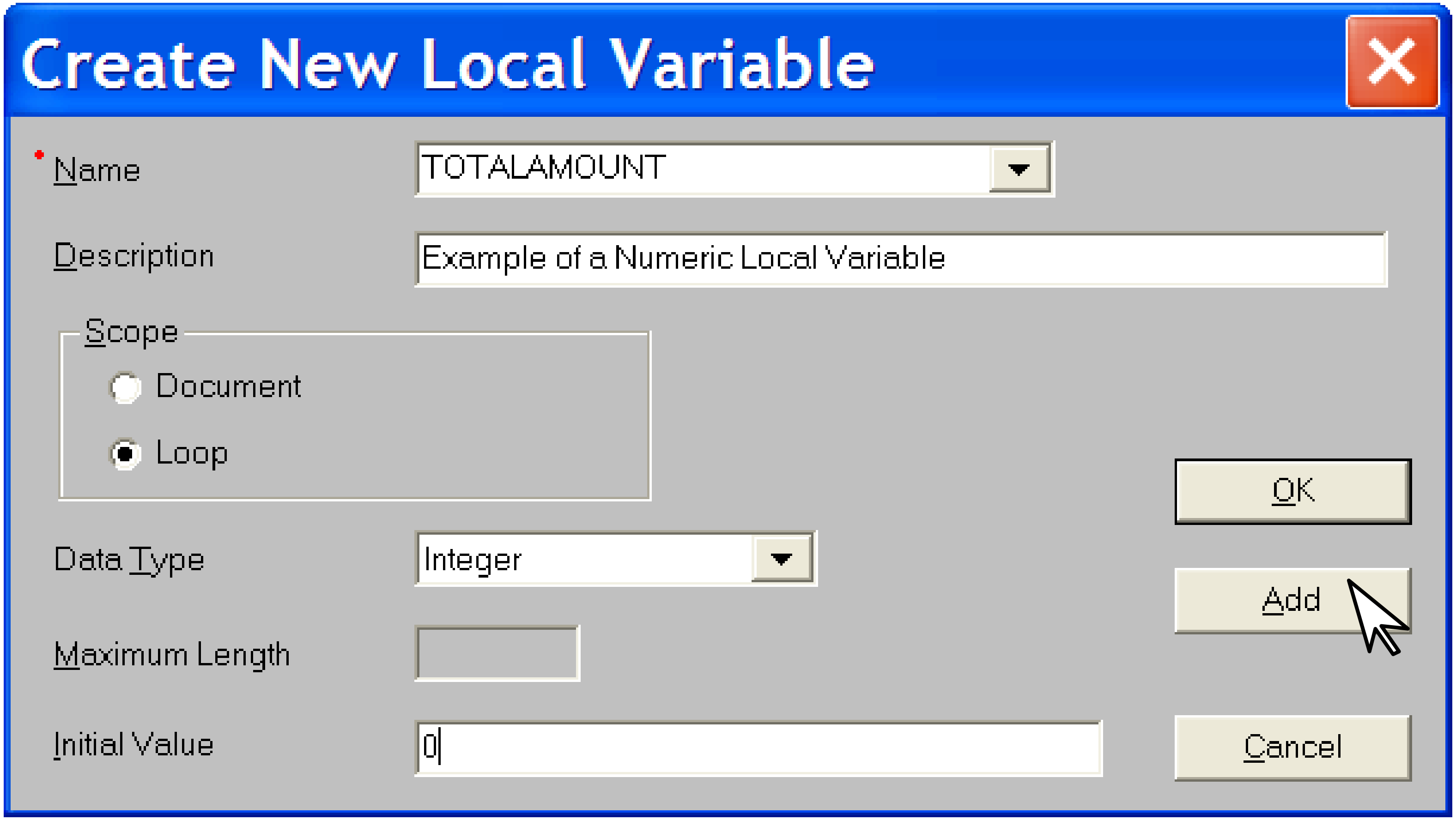
Scope:
- ● Document
- ○ Loop

Data Type: Character

Maximum Length

Initial Value

Example of Numeric Local Variable



Create New Local Variable

*Name: TOTALAMOUNT

Description: Example of a Numeric Local Variable

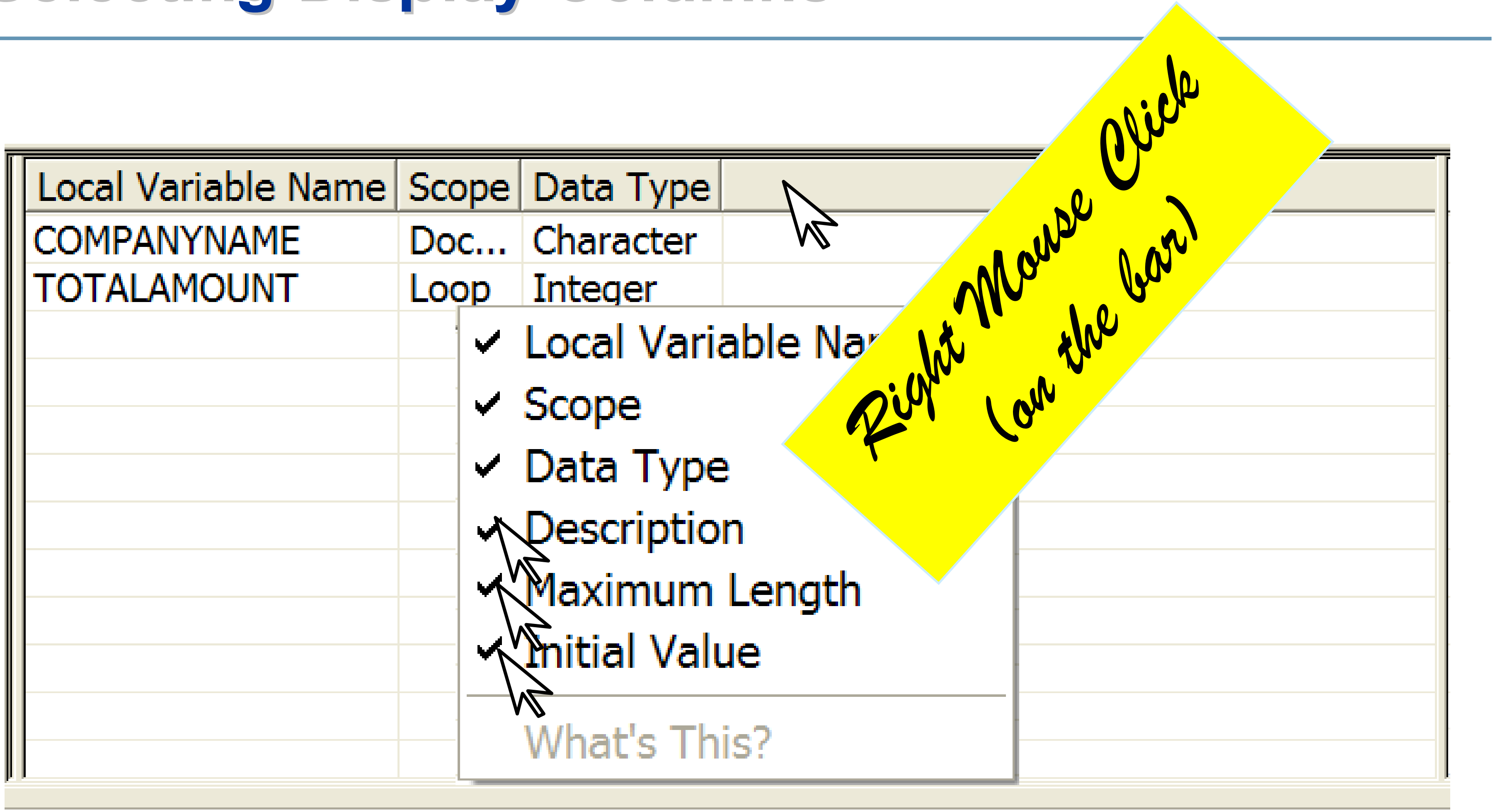
Scope
- ○ Document
- ● Loop

Data Type: Integer

Maximum Length:

Initial Value: 0

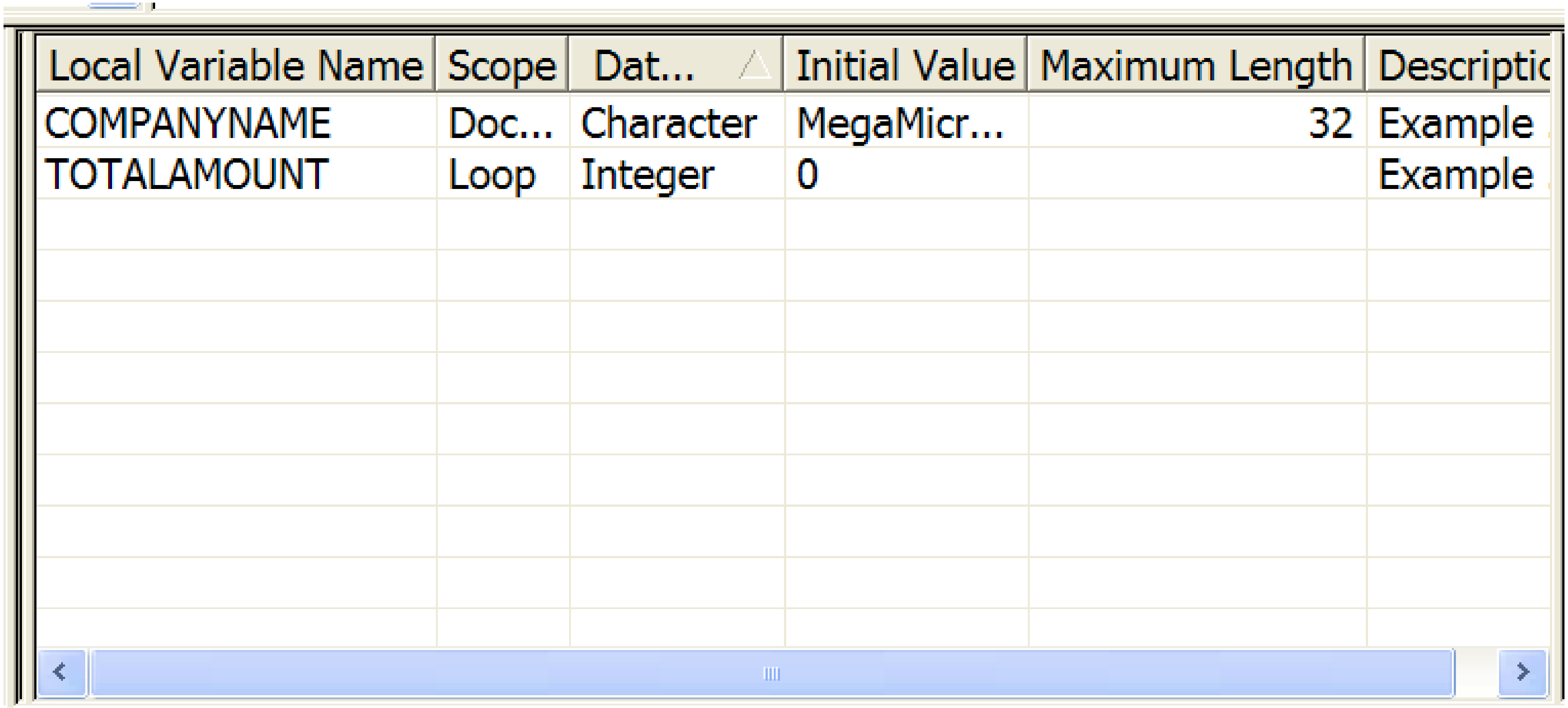
Selecting Display Columns



Local Variable Name	Scope	Data Type
COMPANYNAME	Doc...	Character
TOTALAMOUNT	Loop	Integer

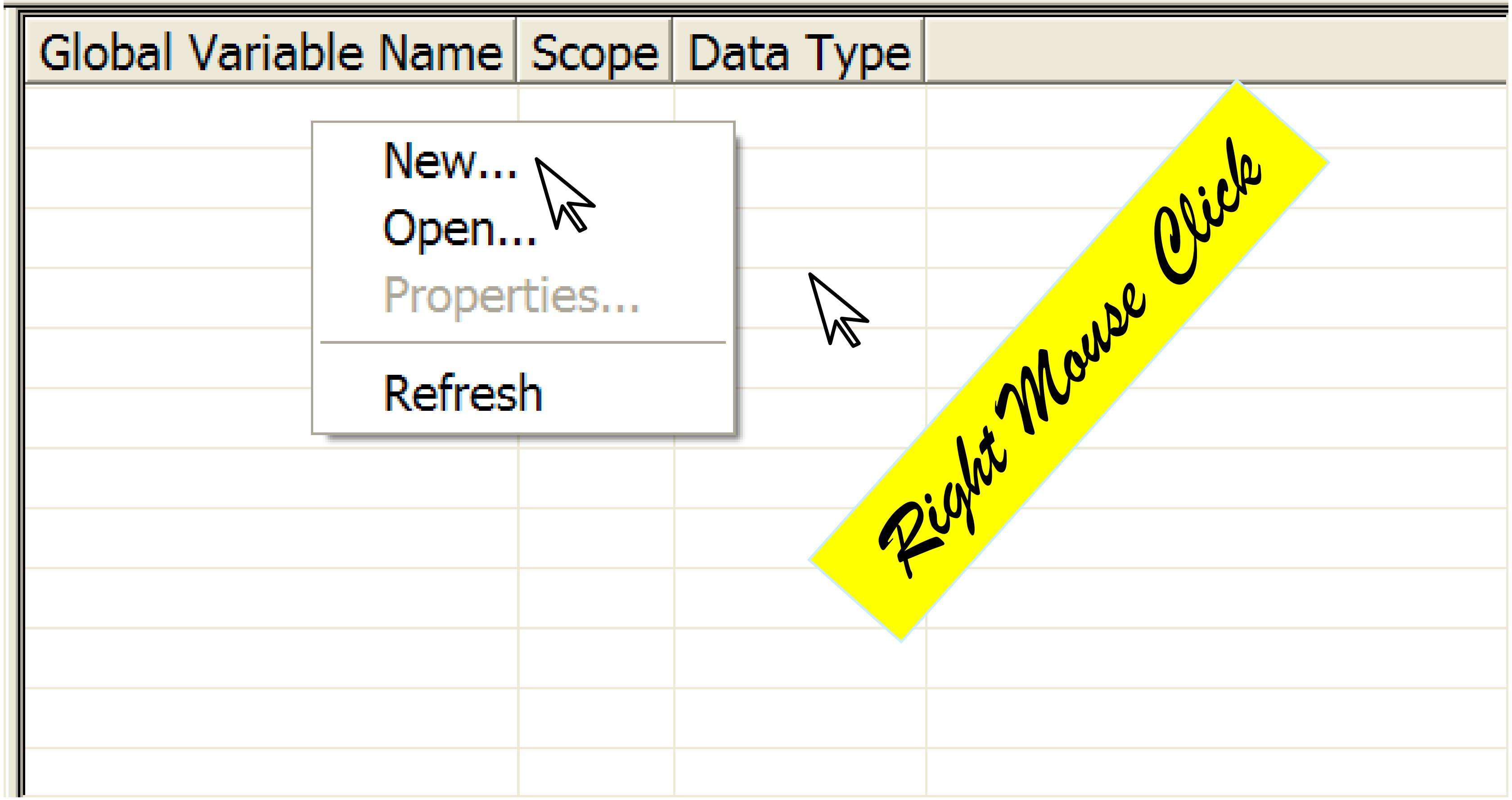
Right Mouse Click (on the bar)

New Display



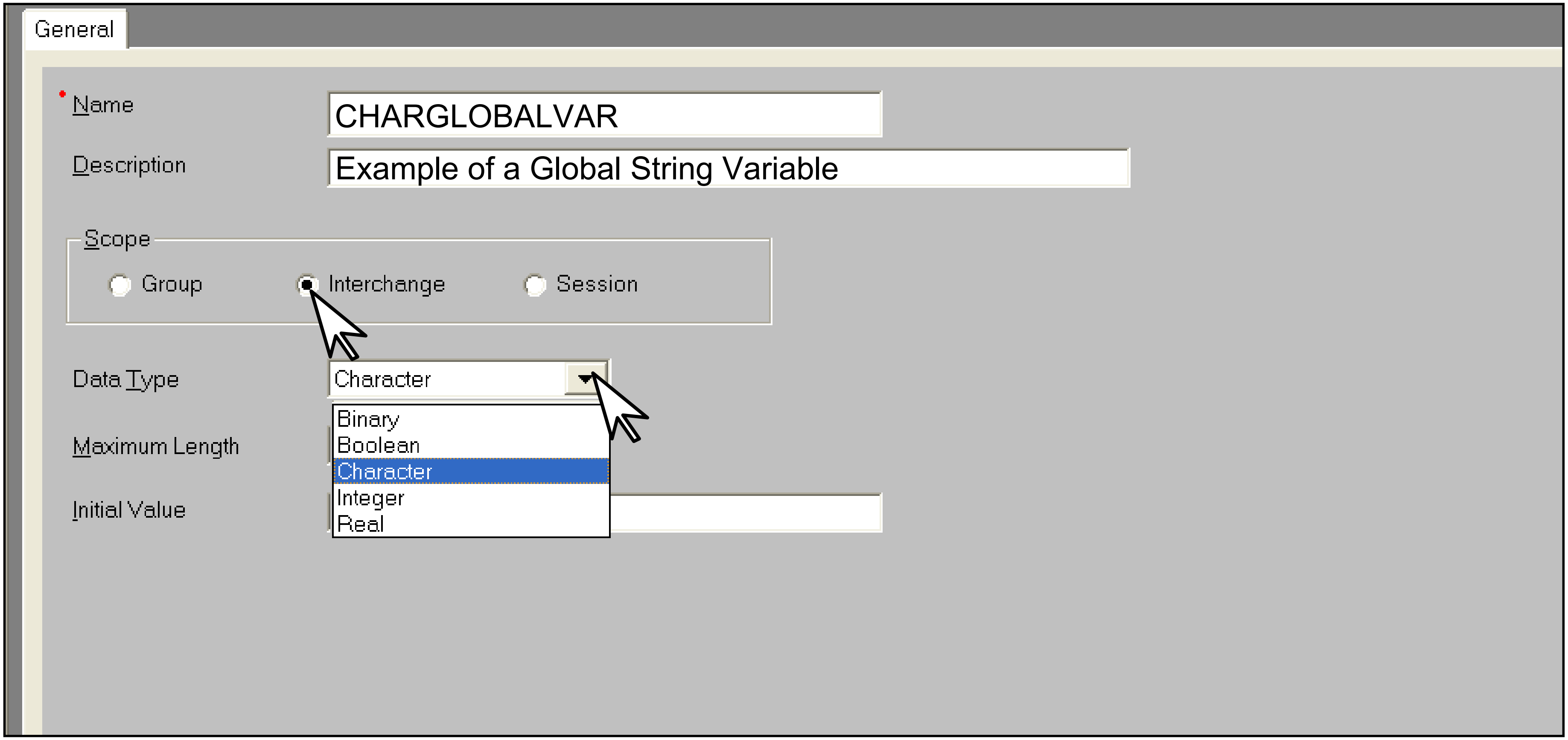
Local Variable Name	Scope	Dat...	Initial Value	Maximum Length	Descriptic
COMPANYNAME	Doc...	Character	MegaMicr...	32	Example
TOTALAMOUNT	Loop	Integer	0		Example

Global Variables



Right Mouse Click

Defining a Global Variable



General

* Name: CHARGLOBALVAR

Description: Example of a Global String Variable

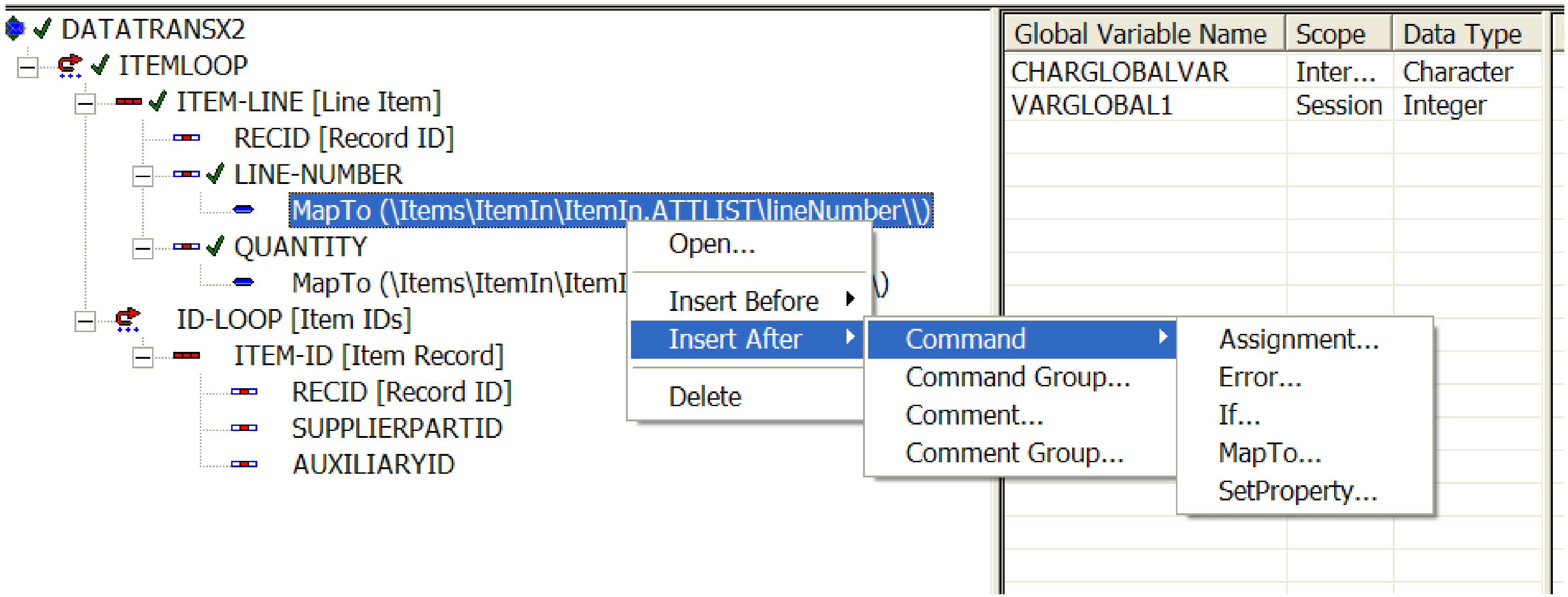
Scope
○ Group ● Interchange ○ Session

Data Type: Character

Maximum Length

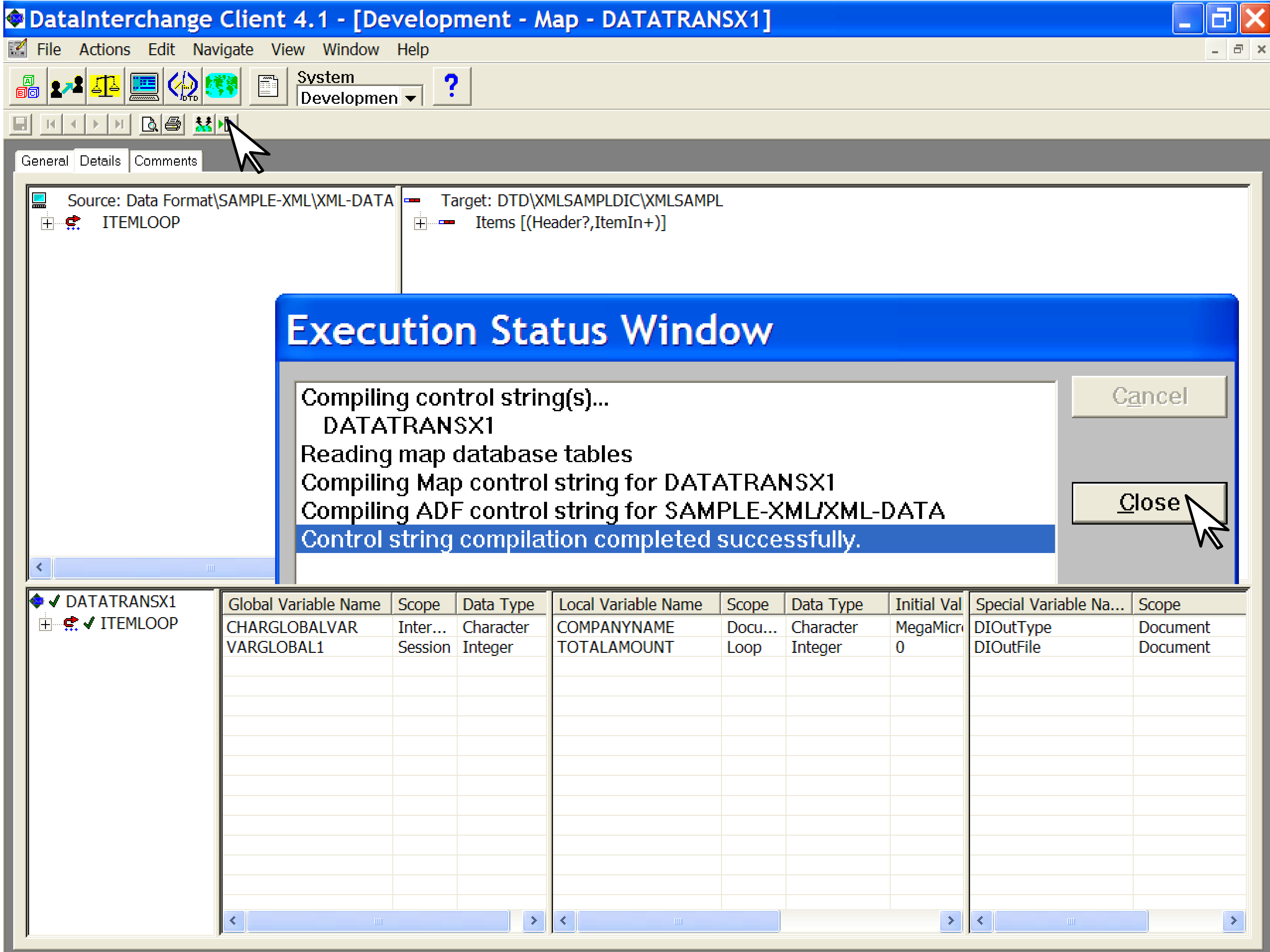
Initial Value

Entering a Mapping Command



```
DATATRANSX2
  ITEMLOOP
    ITEM-LINE [Line Item]
      RECID [Record ID]
      LINE-NUMBER
        MapTo (\Items\ItemIn\ItemIn.ATTLIST\lineNumber\\)
      QUANTITY
        MapTo (\Items\ItemIn\ItemI                    \)
    ID-LOOP [Item IDs]
      ITEM-ID [Item Record]
        RECID [Record ID]
        SUPPLIERPARTID
        AUXILIARYID
```

Global Variable Name	Scope	Data Type
CHARGLOBALVAR	Inter...	Character
VARGLOBAL1	Session	Integer



Source: Data Format\SAMPLE-XML\XML-DATA

ITEMLOOP

Target: DTD\XMLSAMPLDIC\XMLSAMPL

Items [(Header?,ItemIn+)]

Execution Status Window

```
Compiling control string(s)...
  DATATRANSX1
Reading map database tables
Compiling Map control string for DATATRANSX1
Compiling ADF control string for SAMPLE-XML/XML-DATA
Control string compilation completed successfully.
```

DATATRANSX1

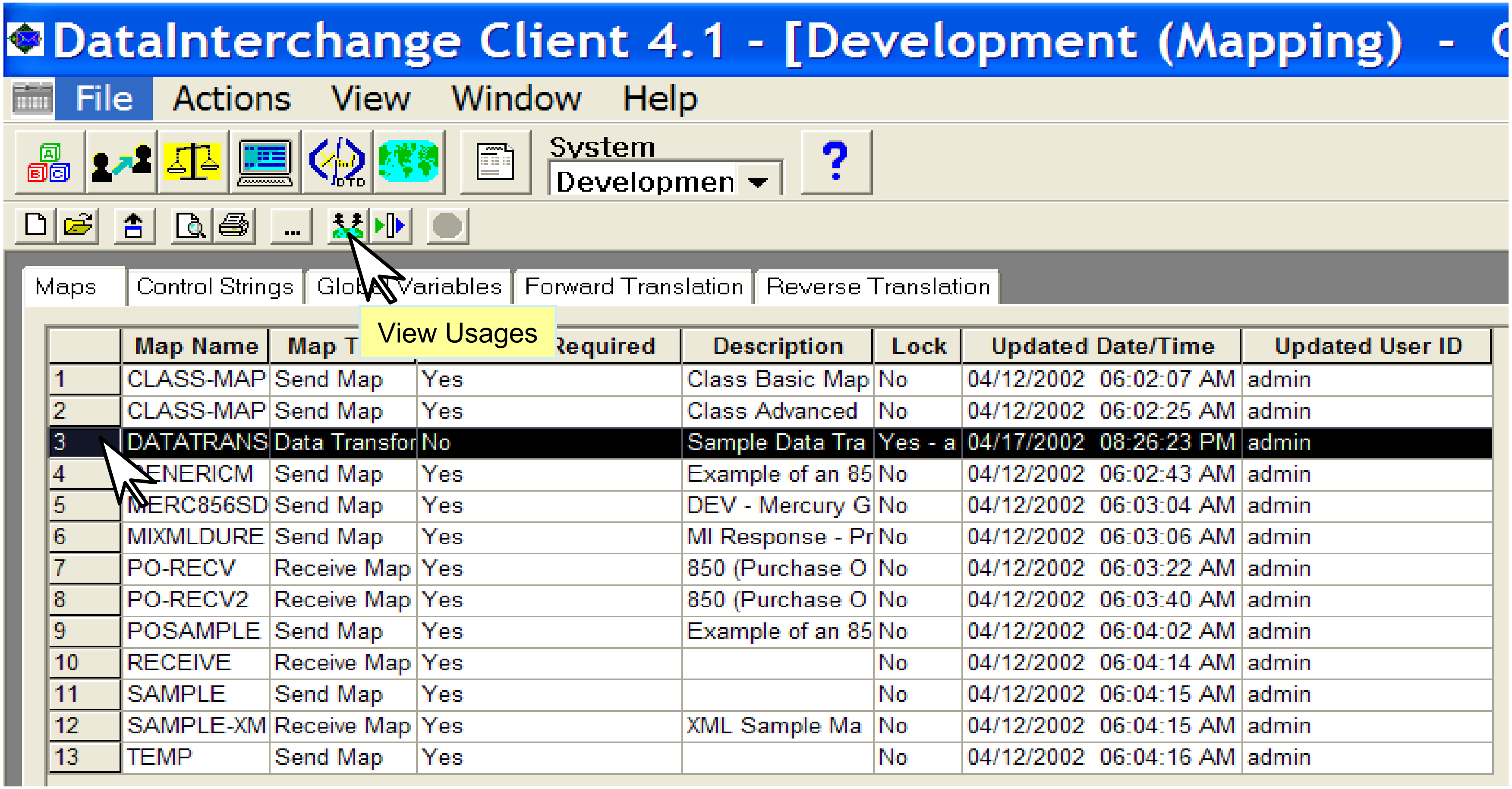
ITEMLOOP

Global Variable Name	Scope	Data Type
CHARGLOBALVAR	Inter...	Character
VARGLOBAL1	Session	Integer

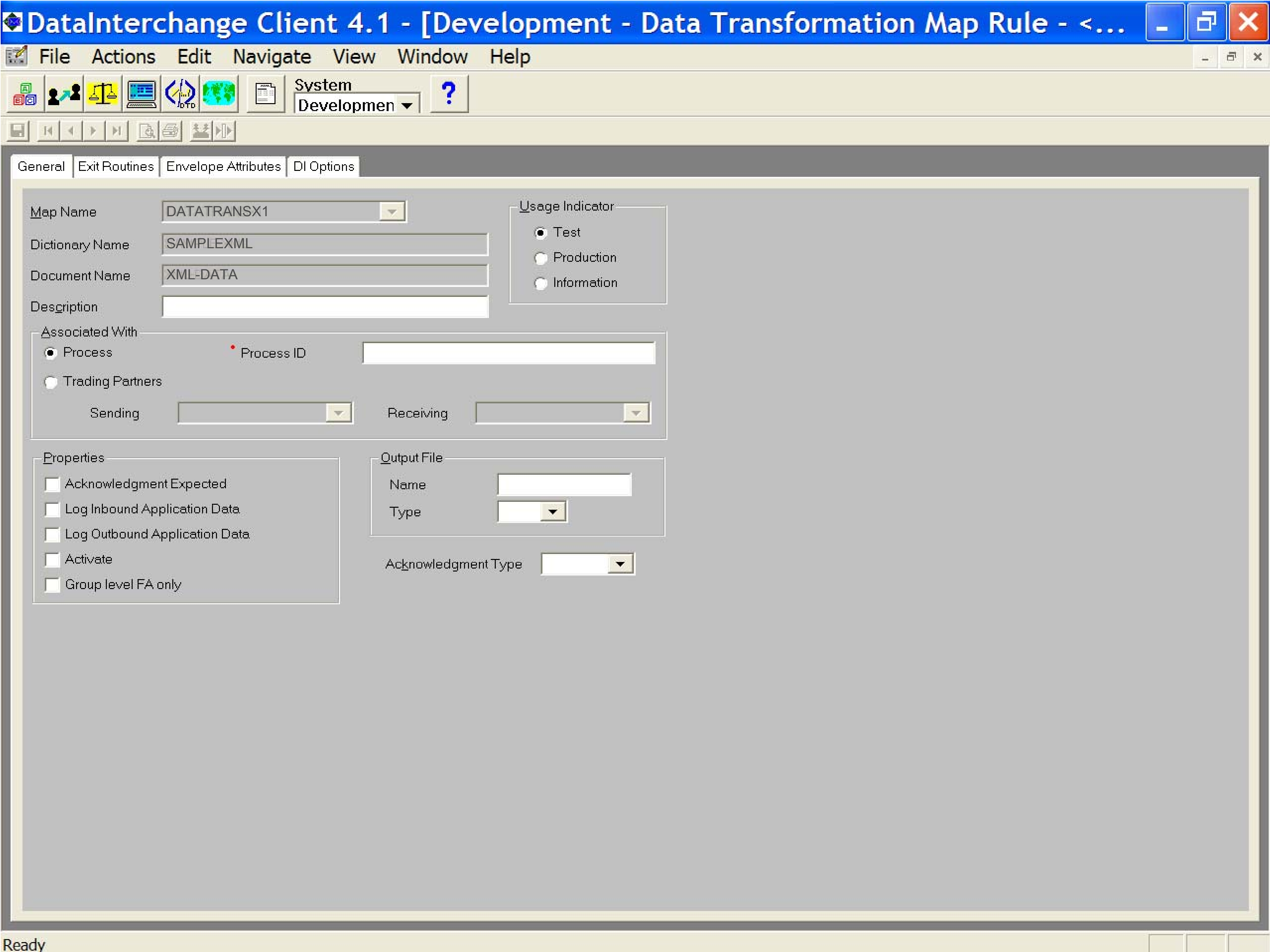
Local Variable Name	Scope	Data Type	Initial Val
COMPANYNAME	Docu...	Character	MegaMicr
TOTALAMOUNT	Loop	Integer	0

Special Variable Na...	Scope
DIOutType	Document
DIOutFile	Document

Map “Rules”



	Map Name	Map T	Required	Description	Lock	Updated Date/Time	Updated User ID
1	CLASS-MAP	Send Map	Yes	Class Basic Map	No	04/12/2002 06:02:07 AM	admin
2	CLASS-MAP	Send Map	Yes	Class Advanced	No	04/12/2002 06:02:25 AM	admin
3	DATATRANS	Data Transfor	No	Sample Data Tra	Yes - a	04/17/2002 08:26:23 PM	admin
4	GENERICM	Send Map	Yes	Example of an 85	No	04/12/2002 06:02:43 AM	admin
5	MERC856SD	Send Map	Yes	DEV - Mercury G	No	04/12/2002 06:03:04 AM	admin
6	MIXMLDURE	Send Map	Yes	MI Response - Pr	No	04/12/2002 06:03:06 AM	admin
7	PO-RECV	Receive Map	Yes	850 (Purchase O	No	04/12/2002 06:03:22 AM	admin
8	PO-RECV2	Receive Map	Yes	850 (Purchase O	No	04/12/2002 06:03:40 AM	admin
9	POSAMPLE	Send Map	Yes	Example of an 85	No	04/12/2002 06:04:02 AM	admin
10	RECEIVE	Receive Map	Yes		No	04/12/2002 06:04:14 AM	admin
11	SAMPLE	Send Map	Yes		No	04/12/2002 06:04:15 AM	admin
12	SAMPLE-XM	Receive Map	Yes	XML Sample Ma	No	04/12/2002 06:04:15 AM	admin
13	TEMP	Send Map	Yes		No	04/12/2002 06:04:16 AM	admin



Map Name: DATATRANSX1

Dictionary Name: SAMPLEXML

Document Name: XML-DATA

Description:

Usage Indicator
- ● Test
- ○ Production
- ○ Information

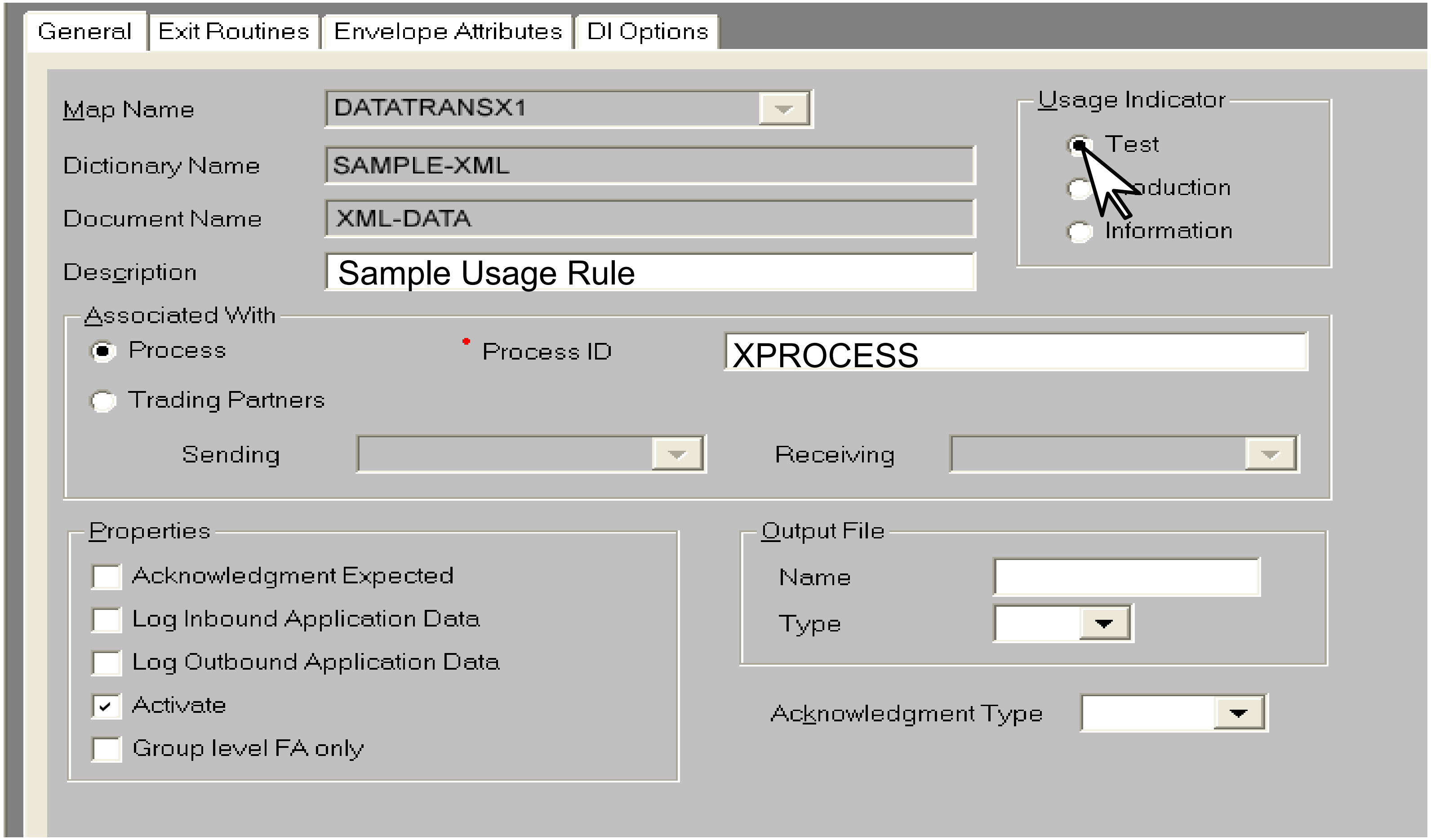
Associated With
- ● Process — * Process ID:
- ○ Trading Partners
- Sending: — Receiving:

Properties
- □ Acknowledgment Expected
- □ Log Inbound Application Data
- □ Log Outbound Application Data
- □ Activate
- □ Group level FA only

Output File
- Name:
- Type:

Acknowledgment Type:

Adding a Process Usage Rule



Map Name: DATATRANSX1

Dictionary Name: SAMPLE-XML

Document Name: XML-DATA

Description: Sample Usage Rule

Usage Indicator
● Test
○ Production
○ Information

Associated With
● Process
○ Trading Partners

Process ID: XPROCESS

Sending:

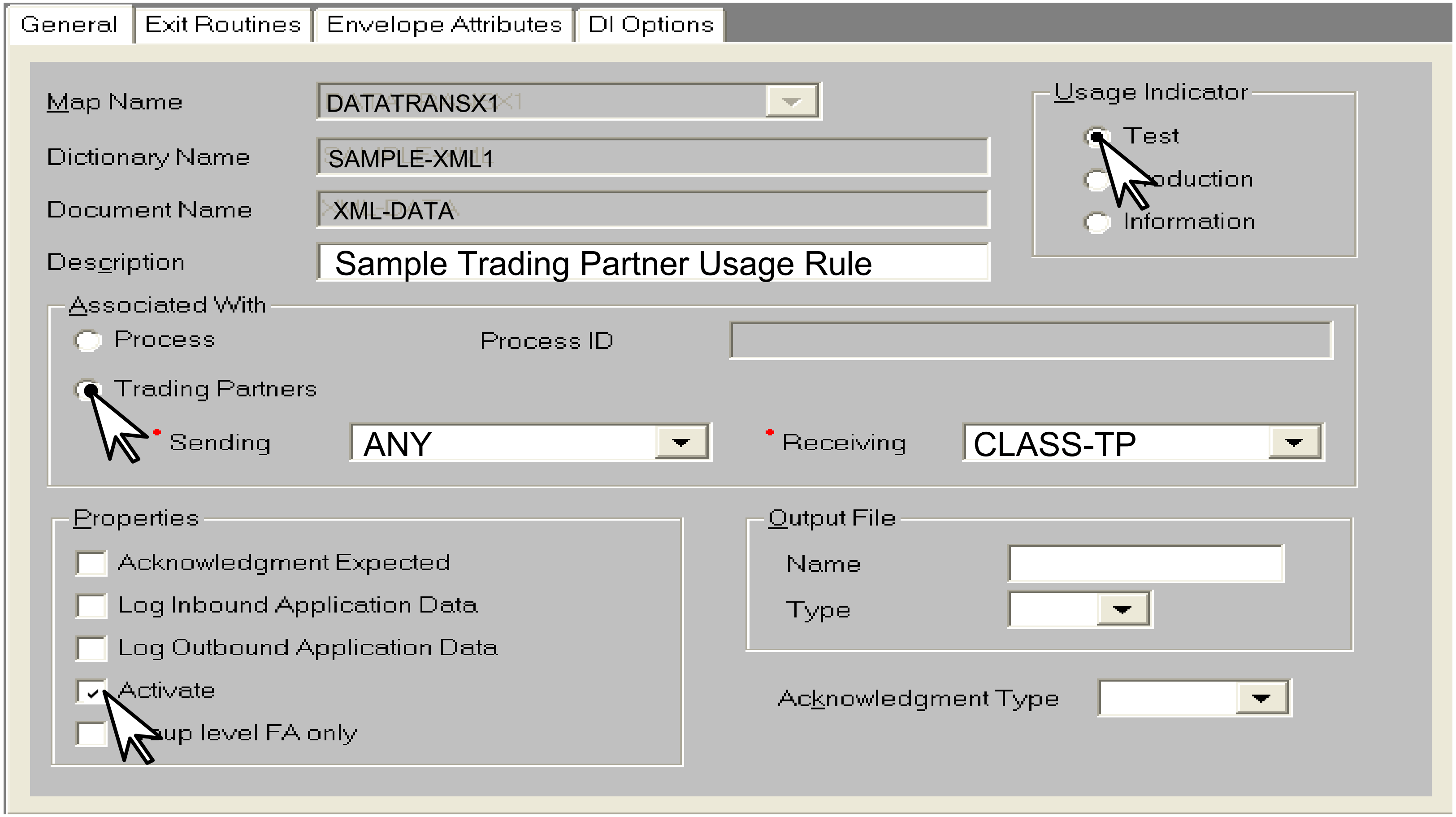
Receiving:

Properties
□ Acknowledgment Expected
□ Log Inbound Application Data
□ Log Outbound Application Data
☑ Activate
□ Group level FA only

Output File
Name:
Type:

Acknowledgment Type:

Adding a Trading Partner Usage Rule



Map Name: DATATRANSX1

Dictionary Name: SAMPLE-XML1

Document Name: XML-DATA

Description: Sample Trading Partner Usage Rule

Usage Indicator
● Test
○ Production
○ Information

Associated With
○ Process
Process ID:
● Trading Partners
Sending: ANY
Receiving: CLASS-TP

Properties
□ Acknowledgment Expected
□ Log Inbound Application Data
□ Log Outbound Application Data
☑ Activate
□ Group level FA only

Output File
Name:
Type:

Acknowledgment Type:

Processes

- Definition – A Process is a collection of maps to be used to interact with a set of trading partners.
- Public Process – Process defining external document exchanges.
- Private Process – Process defining document exchanges within a company.

Processes, Rules, Generic Usages and Minimal Trading Partners

- Processes are an industry term for the DataInterchange “Usage” concept.
- Trading Partner Rules take precedence over Process Rules.
- The Minimal Trading Partners feature allows multiple trading partners to use the same trading partner profile.
- The Generic Usage feature allows multiple trading partners to use the same Usage (Rule).

Review

- Source and Target Dictionaries must be defined for Data Transformation Maps.
- The mapping screen is divided into four quadrants: Source, Target, Mapping Commands, and Variables.
- Global and Local Variables may be defined.
- There are two DI Special Variables: DIOutType and DIOutFile.
- “Rules” are DataInterchange Usages.
- Rules may be associated with Processes or Trading Partners.