



IBM Software Group

IBM WebSphere® Data Interchange V3.3

Variables and Accumulating totals



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This presentation will demonstrate how to accumulate totals in a Data Transformation map.

Agenda

- Review global and local variables
- Demonstrate how to obtain totals



The presentation will review global and local variables and demonstrate how to obtain totals.

Variables and Accumulating Totals

- Variables

- ▶ Global, local, and special
- ▶ Hold values for data manipulation
- ▶ Maximum length for a value is 32K



Map variables are used like variables in any programming language. They are an integral part of the WebSphere Data Interchange mapping command language. Variables are used to hold and manipulate values assigned to them by the user. WebSphere Data Interchange supports three types of variables: *local*, *global*, and *special variables*. A variable can have a value with a maximum length of 32K.

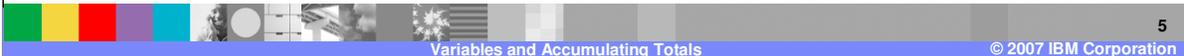
Variables and Accumulating Totals

Global Variable Name	Scope	Data Type	Local Variable Name	Scope	Data Type	Special Variable Name	Scope	Data Type
TotalNumEmployees	Session	Integer	T0	Document	Integer	DIOutType	Document	Character
svccerrorcount	Session	Real				DIOutFile	Document	Character
EmployeeCnt	Session	Integer				DICUserData	Document	Character
transerror	Session	Real						
SNIPTYPE5	Group	Character						
ctmerrorcount	Session	Real						

Global variables can be defined and viewed in the Mapping functional area and defined and removed in the Global Variable tab. Local variables can be defined and removed in the Mapping functional area. Special variables may only be viewed.

Variables and Accumulating Totals

- Global variables
 - ▶ Used across translations
 - ▶ Scope of the variables determines when the value is reset
 - ▶ Scope can be session, interchange, or group



A **Global Variable** defines a variable that can be used across translations. These variables are used much like variables in most programming languages. They can hold and manipulate data in [Data Transformation Maps](#), [Validation Maps](#), and [Functional Acknowledgement Maps](#). While a document is being translated, data can be put into a Global Variable. After the translation of the document ends, the data remains in the Global Variable. The data in the variable may be available in the next translation, depending on the *scope* of the variable, regardless of the map that is used to perform the translation. During subsequent translations within the scope of the variable, the data in the Global Variable can be obtained, manipulated and changed. The scope can be session, interchange, or group.

Variables and Accumulating Totals

WebSphere Data Interchange for Multiplatforms V3.3 - [WDI33Server - Data Transformation Map - WDICONFLB2_S850T]

Source: Data Format(WDILAB1_DICTIONARY(WDILAB1))

- HEADER [Header Record WDI User Conference 2006 - Lab 1]
- LINEITEMS [LineItems Record WDI User Conference 2006 - Lab 1]
- TRAILER [Trailer Record WDI User Conference 2006 - Lab 1]

Target: EDI Standard Transaction(V12V4R1)850

- Table 1
- Table 2
- Table 3

Global Variable Name	Scope	Data	Local Variab...	Scope	Data Ty	Special Variable Name	Scope	Da
TotalNumEmployees	Session	Integi	T0	Document	Integer			
svccerrorcount	Session	Real				DIOutType	Do...	Ch
EmployeeCnt	Session	Integi				DIOutFile	Do...	Ch
Tranerror	Session	Real				DIUserData	Do...	Ch
SNIPType5	Group	Char						
clmerrorcount	Session	Real						

Global Variable Name: TotalNumEmployees, Scope: Session, Data: Integi, Local Variab...: T0, Scope: Document, Data Ty: Integer

Global Variable Name: svccerrorcount, Scope: Session, Data: Real, Local Variab...: , Scope: , Data Ty: , Special Variable Name: DIOutType, Scope: Do..., Da: Ch

Global Variable Name: EmployeeCnt, Scope: Session, Data: Integi, Local Variab...: , Scope: , Data Ty: , Special Variable Name: DIOutFile, Scope: Do..., Da: Ch

Global Variable Name: Tranerror, Scope: Session, Data: Real, Local Variab...: , Scope: , Data Ty: , Special Variable Name: DIUserData, Scope: Do..., Da: Ch

Global Variable Name: SNIPType5, Scope: Group, Data: Char, Local Variab...: , Scope: , Data Ty: , Special Variable Name: , Scope: , Da: ,

Global Variable Name: clmerrorcount, Scope: Session, Data: Real, Local Variab...: , Scope: , Data Ty: , Special Variable Name: , Scope: , Da: ,

Context Menu: New..., Open..., View..., Properties..., Refresh, Find...

Ready

10:52 AM Tuesday 3/6/2007

Variables and Accumulating Totals © 2007 IBM Corporation 6

Global variables are displayed in the Global Variable window. You can define a Global Variable by using right click and selecting New but you cannot remove a Global variable.

Variables and Accumulating Totals

WebSphere Data Interchange for Multiplatforms V3.3 - [WDI33Server (Mapping) - Query: All]

File Actions View Window Help

System WDI33Server

Data Transformation Maps Validation Maps Functional Acknowledgement Maps Send Maps Receive Maps Control Strings

Global Variables Forward Translation Tables Reverse Translation Tables Code Lists

Global Variable Name	Description	Data Type	Lock	Updated Date and Time	Updated User ID
dmererrorcount		Real	No	2/23/2007 2:49:54 PM	awinters
EmployeeCnt		Integer	No	2/22/2007 2:26:16 PM	awinters
SNIPTYPE5	"Y" for S...	Character	No	2/23/2007 2:49:54 PM	awinters
svccerrorcount		Real	No	2/23/2007 2:49:54 PM	awinters
TotalNumEmployees		Integer	No	2/22/2007 2:25:26 PM	awinters
tranerror		Real	No	2/23/2007 2:49:54 PM	awinters

6 rows, current row 5, 1 selected rows

start

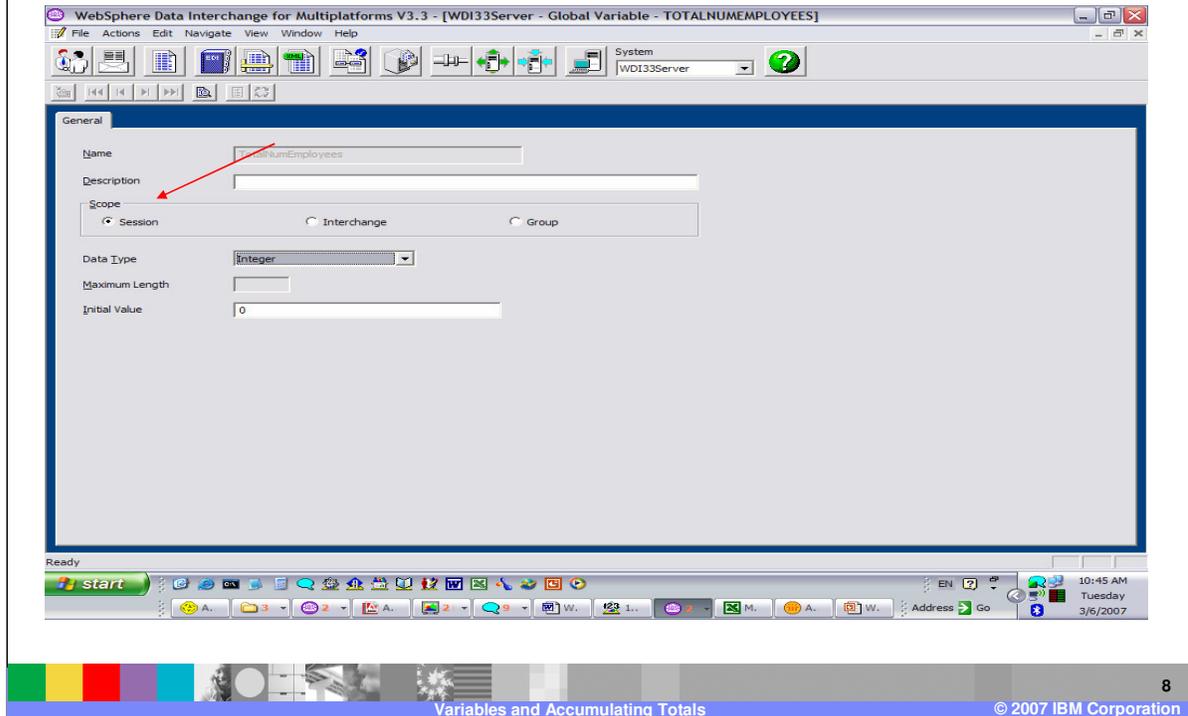
EN 10:43 AM Tuesday 3/6/2007

Variables and Accumulating Totals

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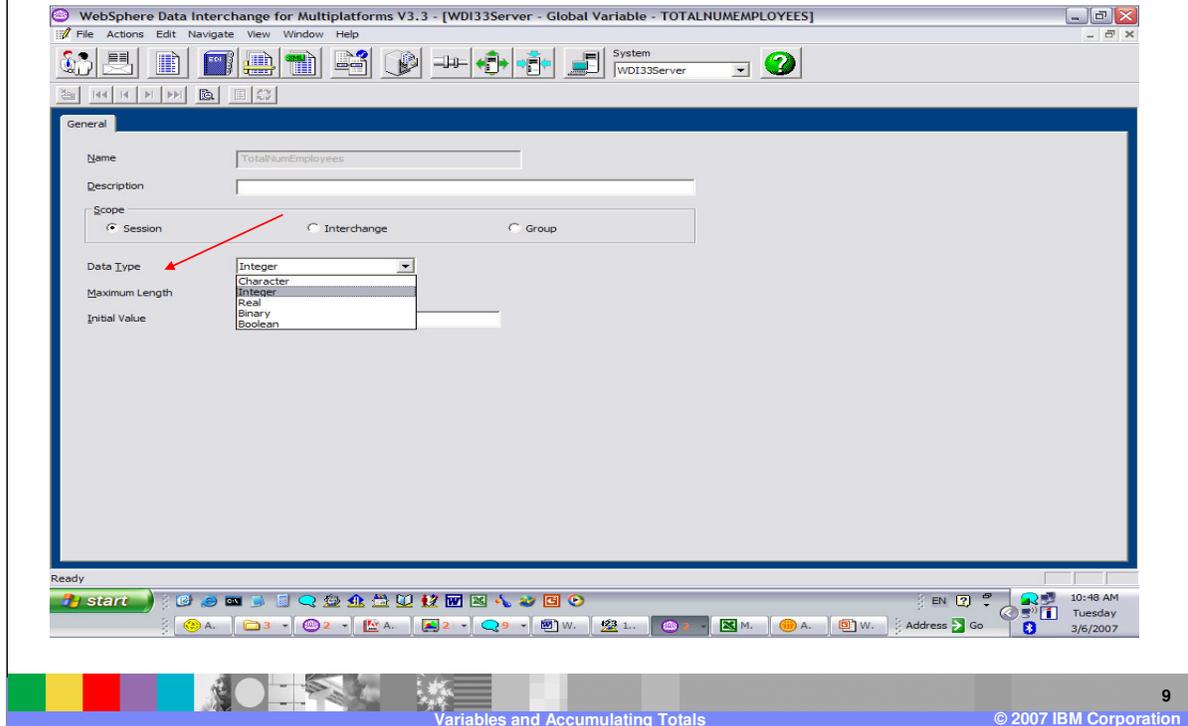
The Global Variable tab in the Mapping functional area contains a list of the Global variables. Variables can be defined and removed.

Variables and Accumulating Totals



The scope of a Global variable can be Session, Interchange, or group. The variable will reset based on the scope of the variable.

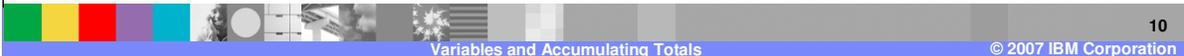
Variables and Accumulating Totals



The data type for the variable can be selected from the drop down list.

Variables and Accumulating Totals

- Local variables
 - ▶ Unique to the map where they are defined
 - ▶ Scope of the variables determines when the value is reset
 - ▶ Scope can be document or loop



Local variables are unique to the map they are defined in. A local variable must be defined to a map before it can be used in that map. Local variables have a scope of *document* or *loop*. During translation, local variables defined with a scope of *document* are created at the start of every document and deleted at the end of the document. Variables defined with a scope of *loop* are created and initialized whenever a new loop iteration is started, and destroyed at the end of each loop iteration. A loop variable does not disturb the value of another variable with the same name at another level of looping. Local variables are maintained within the map in which they are defined. You can add, delete, and alter the properties of any local variable.

Variables and Accumulating Totals

The screenshot shows the WebSphere Data Interchange for Multiplatforms V3.3 interface. The main window displays a Data Transformation Map with the following details:

- Source:** Data Format\WDILAB1_DICTIONARY\WDILAB1
 - HEADER [Header Record WDI User Conference 2006 - Lab 1]
 - LINEITEMS [LineItems Record WDI User Conference 2006 - Lab 1]
 - TRAILER [Trailer Record WDI User Conference 2006 - Lab 1]
- Target:** EDI Standard Transaction\12V-R\1850
 - Table 1
 - Table 2
 - Table 3

The interface also features two tables for variable management:

Global Variable Name	Scope	Data	Local Variab...	Scope	Data Ty	Special Variable Name	Scope	Da
TotalNumEmployees	Session	Integ						
gverrorcount	Session	Real						
EmployeeCnt	Session	Integ						
tranerror	Session	Real						
SNIPType5	Group	Chars						
clmerrorcount	Session	Real						

The Local Variable table is currently empty. A context menu is open over the Local Variable table, showing options: 'New...', 'Delete', 'Properties...', and 'Find...'. A red arrow points to the 'New...' option.

Local variables are displayed in the Local Variable window. You can define a Local Variable by using right click and selecting New. You can remove a Local Variable by selecting the variable and selecting Delete.

Variables and Accumulating Totals

The screenshot displays the 'Local Variable Properties' dialog box in the IBM WebSphere Data Interchange for Multiplatforms V3.3 environment. The dialog is configured with the following settings:

- Name:** T0
- Description:** (empty)
- Scope:** Document (selected with a red arrow)
- Data Type:** Integer
- Maximum Length:** (empty)
- Initial Value:** 0

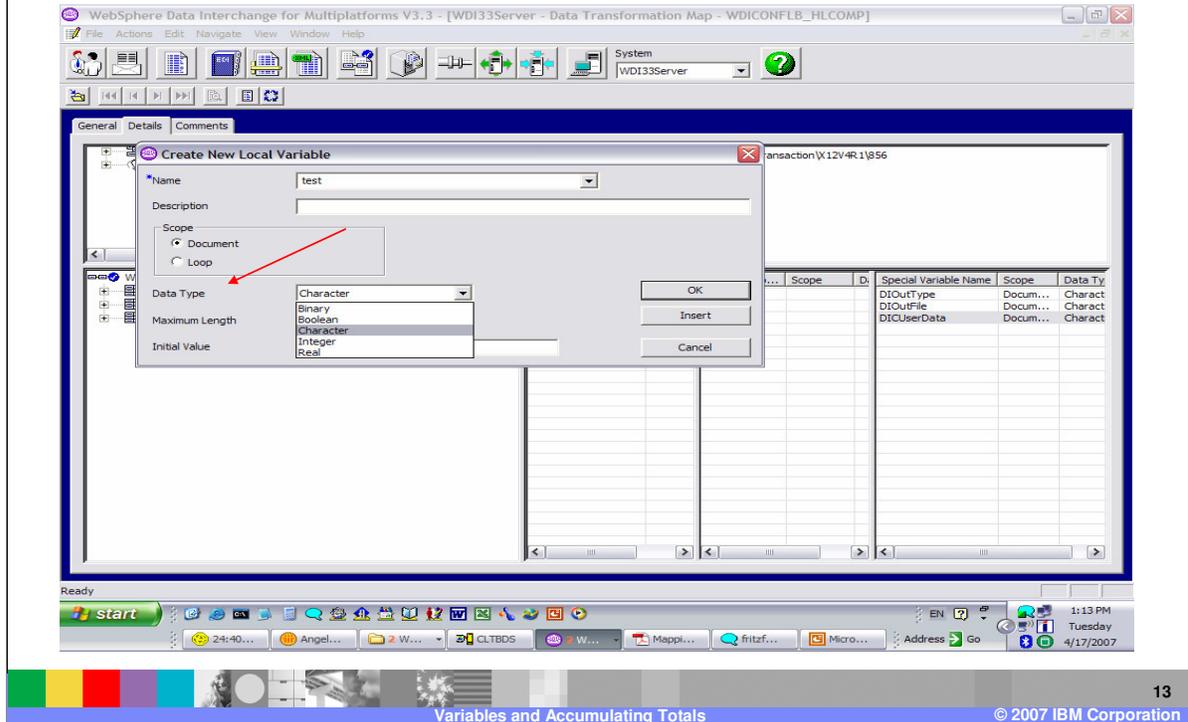
The background shows a Data Transformation Map with a table named 'Table 3' containing the following data:

transerror	Session	Real
SNIPTType5	Group	Char
cmerrorcount	Session	Real

The system tray at the bottom indicates the time is 11:02 AM on Tuesday, 3/6/2007.

The scope of a Local variable can be Document or Loop. The variable will reset based on the scope of the variable.

Variables and Accumulating Totals



The data type for the variable can be selected from the drop down list.

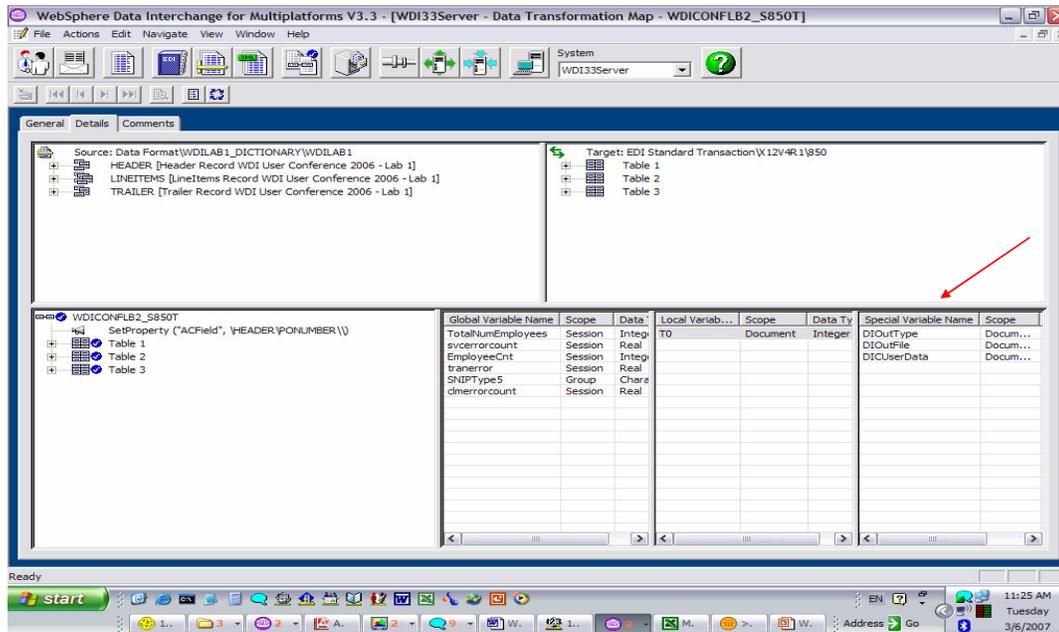
Variables and Accumulating Totals

- Special variables
 - ▶ Predefined
 - ▶ View properties using double click
 - ▶ Begin with characters “DI”
 - ▶ Write only, cannot be used in an expression



Special variables are a group of predefined variables used by WebSphere Data Interchange. They function much like local or global variables, except they each have a special purpose. A user can view properties of a special variable, but no changes can be made. Special variables always start with “DI”, which is reserved. Special variables are write-only. That means you can set the value of a special variable, but cannot read it or use it in an expression.

Variables and Accumulating Totals



Special variables are displayed in the Special Variable window.

Section

Accumulating Totals

Variables and Accumulating Totals

WebSphere Data Interchange for Multiplatforms V3.3 - [WDI33Server - Data Transformation Map - WDICONFLB2_S850T]

Source: Data Format\WDLAB1_DICTIONARY\WDLAB1

- HEADER [Header Record WDI User Conference 2006 - Lab 1]
- LINEITEMS [LineItems Record WDI User Conference 2006 - Lab 1]
- TRAILER [Trailer Record WDI User Conference 2006 - Lab 1]

Table 1

Table 2

10 M PO1 Loop [Baseline Item Data]

- ForEach [LINEITEMS]
 - TO = TO + 1
 - 10 M PO1 [Base...]
 - 15 O LIN [Item...]
 - 18 O SI [Service...]
 - 20 O CLR [Curr...]
 - 25 O CN1 [Cont...]
 - 30 O PO3 [Addi...]
 - 40 O CTP Loop [Expand All]
 - 45 O PAM [Peric...]
 - 49 O MEA [Mea...]
 - 50 O PID Loop [Find...]
 - CloseOccurrence (Table 2)\10 M PO1 Loop\50 O PID Loop\
 - 70 O PVWK [Paperwork]

Table 3

10 O CTT Loop [Transaction Totals]

- 1 M 354 [Number of Line Items]
- 2 O 347 [Hash Total]
- 3 C 81 [Weight]
- 4 C 355 [Unit or Basis for Measurement Code]
- 5 C 183 [Volume]
- 6 C 355 [Unit or Basis for Measurement Code]
- 7 O 352 [Description]
- 20 O &MT [Monetary Amount]

Global Variable Name	Scope	Data Type	Local Vari...	Scope	Data Type	Speci
TotalNumEmployees	Session	Integer		T0	Document	Integer
svcerrorcount	Session	Real				DIOU
EmployeeCnt	Session	Integer				DIOU
tranerror	Session	Real				DIOU
SNIPTType5	Group	Character				
dmererrorcount	Session	Real				

Ready

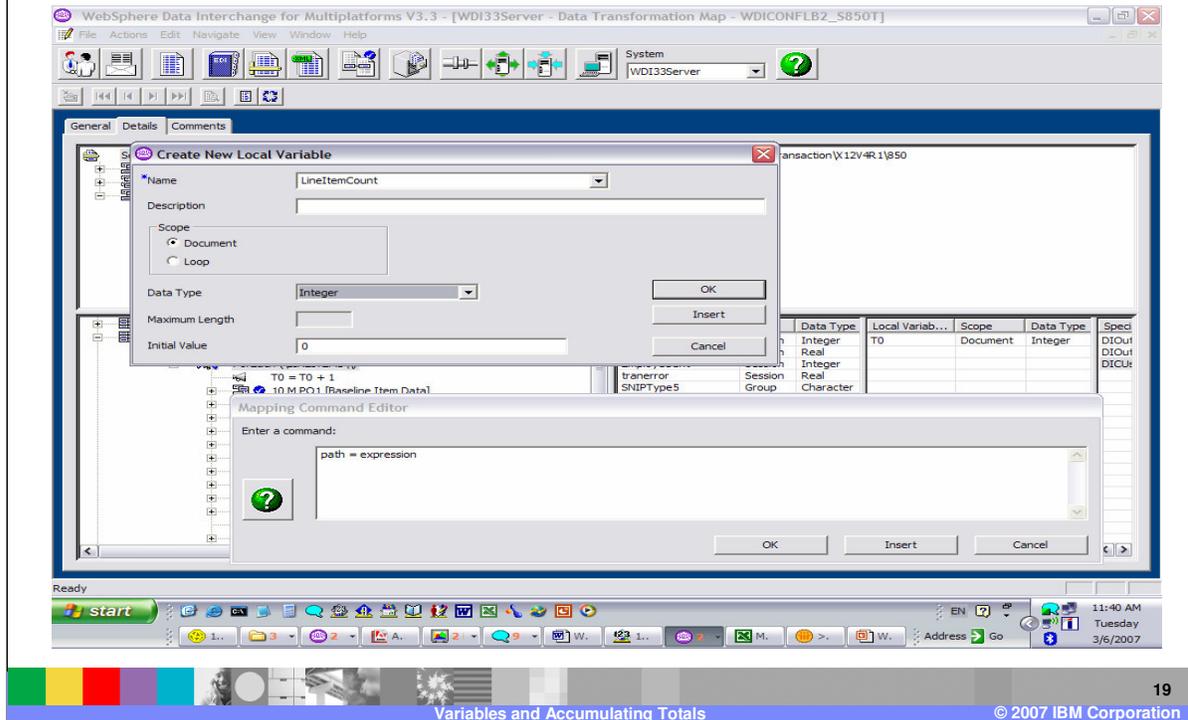
11:48 AM
Tuesday
3/6/2007

Variables and Accumulating Totals

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In this example you will accumulate the total line items mapped to the PO1 Loop and map this to the total to the CTT Segment in the target document. This is a target based map and the PO1 Loop will have a ForEach Qualification under the PO1 Loop. You can add a local variable LineItemCnt with type Integer and use this variable as the accumulator. Within the ForEach command you want to use the Assignment command.

Variables and Accumulating Totals



The Assignment command has 2 arguments path and expression. You can move to the Local Variable Window and create a new Local Variable using Right Click. A scope of Loop will reset the variable value when the loop is finished but you want to map the total later in the map execution so for this example the scope will be Document. The initial value is set to zero. This will set the value of the variable to 0 each time this map is executed.

Variables and Accumulating Totals

The screenshot shows the IBM WebSphere Data Interchange for Multiplatforms V3.3.3 interface. The main window displays a Data Transformation Map configuration for a source 'Data Format\WDILAB1_DICTIONARY\WDILAB1'. The source is mapped to a target 'EDI Standard Transaction\X12V4R1\950'. The source data is structured as follows:

- HEADER [Header Record WDI User Conference 2006 - Lab 1]
- LINEITEMS [LineItems Record WDI User Conference 2006 - Lab 1]
- TRAILER [Trailer Record WDI User Conference 2006 - Lab 1]
- RECORDID [WDI User Conference 2006 - Lab 1]
- ITEMCOUNT [WDI User Conference 2006 - Lab 1]
- TOTALBUCKS [WDI User Conference 2006 - Lab 1]
- DESC [WDI User Conference 2006 - Lab 1]

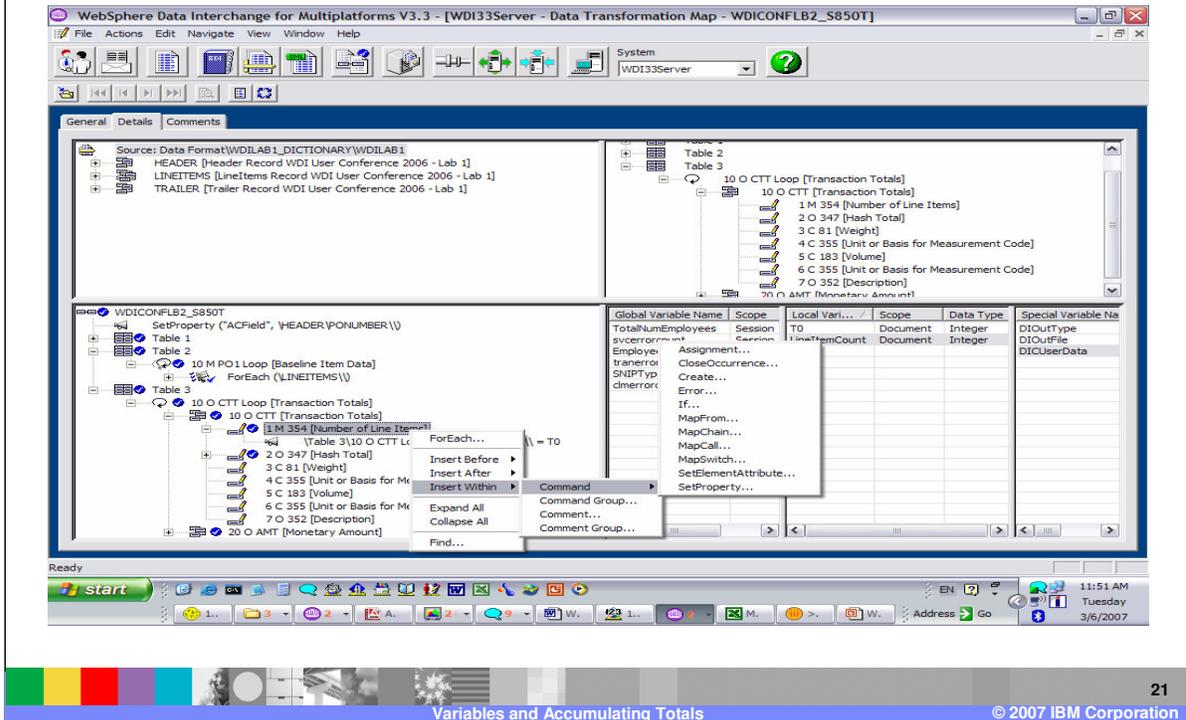
The 'Mapping Command Editor' dialog is open, showing the command: `LineItemCount = LineItemCount + 1`. The background window shows a table of global variables:

Global Variable Name	Scope	Data Type	Local Vari...	Scope	Data Type	Spec
TotalNumEmployees	Session	Integer				
everrorcount	Session	Real				
EmployeeCnt	Session	Integer				
tranerror	Session	Real				
SNIPTYPE5	Group	Character				
			LineItemCount	Document	Integer	

The 'Mapping Command Editor' dialog has buttons for 'OK', 'Insert', and 'Cancel'. The system tray at the bottom shows the date and time: Tuesday, 3/6/2007, 11:44 AM.

You can assign a value to LineItemCount by using the drag from the Local Variable window and drop on to the path argument. Since you are counting the number of line items you can just add 1 to the variable.

Variables and Accumulating Totals



You can map the variable to the CTT segment using the Assignment command.

Variables and Accumulating Totals

WebSphere Data Interchange for Multiplatforms V3.3 - [WDI33Server - Data Transformation Map - WDICONFLB2_S850T]

Source: Data Format\WDILAB1_DICTIONARY\WDILAB1
 HEADER [Header Record WDI User Conference 2006 - Lab 1]
 LINEITEMS [LineItems Record WDI User Conference 2006 - Lab 1]
 TRAILER [Trailer Record WDI User Conference 2006 - Lab 1]

Target Table 3
 10 O CTT Loop [Transaction Totals]
 10 O CTT [Transaction Totals]
 1 M 354 [Number of Line Items]
 2 O 347 [Hash Total]
 3 C 81 [Weight]
 4 C 355 [Unit or Basis for Measurement Code]
 5 C 183 [Volume]
 6 C 355 [Unit or Basis for Measurement Code]
 7 O 352 [Description]

Global Variable Name	Scope	Local Vari...	Scope	Data Type	Special Variable Na
TotalNumEmployees	Session	T0	Document	Integer	DIOutType
sverrorcount	Session	LineItemCount	Document	Integer	DIOutFile
EmployeeCnt	Session				DIUserData
trerror	Session				
SNIPType5	Group				

Mapping Command Editor
 Enter a command:
 \Table 3\10 O CTT Loop\10 O CTT\1 M 354\ = LineItemCount

Ready

22

Variables and Accumulating Totals © 2007 IBM Corporation

Drag and drop the target path to the path argument and drag and drop the Local Variable LineItemCount to the expression argument.

Variables and Accumulating Totals

Global Variable Name	Scope	Local Vari...	Scope	Data T
TotalNumEmployees	Session	T0	Document	Intege
svccorrcount	Session	LineItemCount	Document	Intege
EmployeeCnt	Session			
tranerror	Session			
SNIPType5	Group			
chmerorcoun	Session			

This is the completed mapping.

Variables and Accumulating Totals

The screenshot displays the 'Create New Local Variable' dialog box in the IBM WebSphere Data Interchange for Multiplatforms V3.3 environment. The dialog is configured for a variable named 'TotalPrice' with a 'Real' data type and an initial value of '0'. The scope is set to 'Loop'. A 'Mapping Command Editor' is open below, showing the command 'path = expression'. The background shows a data transformation map with a loop structure.

Variable Name	Scope	Local Vari...	Scope	Data T
NumEmployees	Session	T0	Document	Intege
rorcount	Session	LineItemCount	Document	Intege
ryeeCnt	Session			
ror	Session			
Type5	Group			
rorcount	Session			

Now lets accumulate the total price from the line item loop and map that total to the AMT segment. You can use the Assignment command to accumulate the total in the Local Variable TotalPrice.

Variables and Accumulating Totals

The screenshot shows the WebSphere Data Interchange for Multiplatforms V3.3 interface. The main window displays a Data Transformation Map configuration for 'WDI User Conference 2006 - Lab 1'. The 'Mapping Command Editor' dialog is open, showing the command: `TotalPrice = TotalPrice + \LINEITEMS\UNITPRICE\|`. Red arrows indicate the drag-and-drop action of the local variable path from the source document window to the command editor.

Global Variable Name	Scope	Local Vari...	Scope	Data T
TotalNumEmployees	Session	T0	Document	Intege
svccorrcount	Session	LineItemCount	Document	Intege
EmployeeCnt	Session	TotalPrice	Document	Real
tranerror	Session			
SNIPType5	Group			
cmerrorcount	Session			

The Local Variable is used for the path argument and part of the expression. The plus operator is used as part of the expression. And you can use drag from the source document window and drop after the operator.

Variables and Accumulating Totals

The screenshot shows the IBM WebSphere Data Interchange for Multiplatforms V3.3 interface. The main window displays a Data Transformation Map (DTM) for a project named 'WDICONFLB2_S850T'. The map includes several tables and loops, such as 'Table 1' (SetProperty), 'Table 2' (ForEach), and 'Table 3' (Loop). A 'Mapping Command Editor' dialog is open, showing a command: `{Table 3}\10 O CTT Loop\20 O AMT\2 M 782\} = TotalPrice`. A table in the background lists global variables and their scopes.

Global Variable Name	Scope	Local Vari...	Scope	Data T
TotalNumEmployees	Session	T0	Document	Intege
svccerrorcount	Session	LineItemCount	Document	Intege
EmployeeCnt	Session	TotalPrice	Document	Real
tranerror	Session			
SHIPType5	Group			
clmerrorcount	Session			

Now you can map the TotalPrice variable to the AMT segment.

Reference

- More information can be found in the WDI V3.3 Mapping Guide.



More information can be found in the WebSphere Data Interchange Version 3.3 Mapping Guide.

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