



IBM Software Group

# ***IBM WebSphere® Data Interchange V3.3***

## ***Qualifying Hierarchical Loops***



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This presentation will review how to qualify Hierarchical Loops in Data Transformation maps.

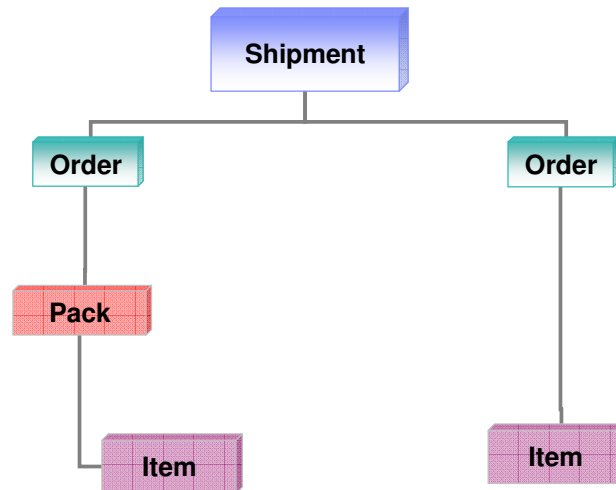
## Agenda

- Review Qualification behavior with HLLLevel



The presentation will describe the behavior using different qualification under the HLLLevel Qualification and hierarchical loop mapping.

## Mapping Hierarchical Loops



This is an example of a hierarchy. The Shipment contains orders, orders contain packs or items, and packs contain items.

## Qualifying Hierarchical Loops

- The HLLLevel mapping command behavior is similar to using a “Qualify by value” Qualification for EDI source maps.
  - ▶ Qualify (StrComp (path, “S”) EQ 0)
  - ▶ HLLLevel (“S”)
- Note the difference in the “Qualify by value” and the “HLLLevel”.
  - ▶ There is a “path” associated with the “Qualify by value”.
  - ▶ There is no “path” associated with the “HLLLevel”.
  - ▶ This means for “HLLLevel”, there is NO implied CloseOccurrence.



The HLLLevel() command is used to specify mapping commands for a specific occurrence of a hierarchical loop based on level code and parent.

A hierarchical loop level code is specified in the HLLLevel() command. The level code identifies the code used for this level of the hierarchical loop. Adding peer and child HLLLevel commands allow you to visually create the hierarchical loop structure in the map.

If the hierarchical loop is in the source document definition, then the map must be a source based map. When an HL segment is encountered during translation, the HLLLevel() commands at the corresponding level and within the corresponding parent loop of the hierarchical loop structure are examined to locate the mapping commands to be executed. The HLLLevel mapping command behavior is similar to using a “Qualify by value” Qualification for Electronic Data Interchange (EDI) source maps. There is a “path” associated with the “Qualify by value”. There is no “path” associated with the “HLLLevel”. This means for “HLLLevel”, there is NO implied CloseOccurrence.

The map must be a target based map if the hierarchical loop is in the target document definition. When the HLLLevel() command is encountered during translation, the corresponding hierarchical loop will be generated in the target document if the mapping commands within the HLLLevel() command

## Qualifying Hierarchical Loops

- Additional Qualification can be placed under the HLLLevel mapping command. Such as Multi-Occurrence Qualification MapTo() and ForEach() using Drag and Drop. Other Qualification can be added with right click on HLLLevel mapping command.
- Adding Additional Qualification will activate the implied CloseOccurrence.
- If no Additional Qualification is added, a CloseOccurrence command may be needed.



Additional Qualification can be placed under the HLLLevel mapping command. Such as Multi-Occurrence Qualification MapTo() and ForEach() using Drag and Drop. Other Qualification can be added with right click on HLLLevel mapping command. Adding Additional Qualification will activate the implied CloseOccurrence. If no Additional Qualification is added, a CloseOccurrence command may be needed.

## Qualifying Hierarchical Loops

Input	Output	
ST*856*45920001~	0030	
BSN*30*01*050524*0049~		
HL*1*S~	01000001S	SHIP1
N1*SF**92*SHIP1~		
HL*2*1*O~	02000002O0000ORD1	
PRF*ORD1*11113711**050523~		
HL*3*2*P~	05 P PAC1111	
MAN*GM*PAC1111~		
HL*4*1*O~	02000004O0000ORD2	
PRF*ORD2*11113712**050523~		
HL*5*4*P~	05 P PAC2222	
MAN*GM*PAC2222~		
HL*6*S~	01000006S	SHIP2
N1*SF**92*SHIP2~		
HL*7*6*O~	02000007O0000ORD3	
PRF*ORD3*11113711**050523~		
HL*8*7*P~	05 P PAC3333	
MAN*GM*PAC3333~		
HL*9*6*O~	02000009O0000ORD4	
PRF*ORD4*11113712**050523~		
HL*10*9*P~	05 P PAC4444	
MAN*GM*PAC4444~		
CTT*10~		
SE*24*45920001~		

This example will be used to show the behavior of qualification. The example will show a WebSphere Data Interchange (WDI) Version 3.2 Source based map Electronic Data Interchange (EDI) standard data to application data mapping. The qualification rules also apply to WDI Version 3.3. The Input or source on the left is EDI with Hierarchical Level (HL) Loops and the Output or target on the right is the desired output.

# Qualifying Hierarchical Loops

Global Variable Name	Scope	Local Variable Name	Special Variable Name	Scope	DI
StopSeq	Ses		DIOUType	Do...	CI
MapNameWithProje...	Int.		DIOUFile	Do...	CI
Headerfnal	Ses		DICUserData	Do...	CI
GroupControlNumber	Int.				
G_ASPE_S	Ses				
d	Ses				
WCMAP308Interch...	Int.				
varxx	Ses				
mmiboolgrouptrue	Gro				
HeaderST02	Ses				
BUNDLEFLAG	Ses				
Boolean	Ses				
WCMAP308Session...	Ses				
SponsorId	Int.				
INVOICE_LINE	Gro				
G_VATP_S	Ses				
G_VAT_CAT_Z_FLAG	Ses				
DatumTijdOntvangst	Ses				
TRACETT	Ses				
TotalNumEmployees	Ses				
test	Ses				
SNDPRN	Int.				
issax	Int.				
G_ELVA_Z	Ses				
BVAR	Ses				
TBLIVAR	Ses				
SubscriberName	Gro				
Raw_HOST	Ses				

The example is going to work with HL Levels for Shipment, Order, and Pack. The Shipment level is the base level. The Order Level is a child of Shipment. And the Pack level is a child of the Order level. There are no additional qualifications under the HL Level mapping commands.

## Qualifying Hierarchical Loops

Input	HLLevel() Only	
▶ ST*856*45920001~		
▶ BSN*30*01*050524*0049~		
▶ HL*1**S~	▶ 0030	
▶ N1*SF**92*SHIP1~		
▶ HL*2*1*O~	▶	
▶ PRF*ORD1*11113711**050523~		
▶ HL*3*2*P~		
▶ MAN*GM*PAC1111~		
▶ HL*4*1*O~	▶ 01000006S	SHIP2
▶ PRF*ORD2*11113712**050523~		
▶ HL*5*4*P~		
▶ MAN*GM*PAC2222~	▶ 02000009O00000ORD4	
▶ HL*6**S~		
▶ N1*SF**92*SHIP2~		
▶ HL*7*6*O~	▶ 05 P	PAC4444
▶ PRF*ORD3*11113711**050523~		
▶ HL*8*7*P~		
▶ MAN*GM*PAC3333~		
▶ HL*9*6*O~		
▶ PRF*ORD4*11113712**050523~		
▶ HL*10*9*P~		
▶ MAN*GM*PAC4444~		
▶ CTT*10~		
▶ SE*24*45920001~		

Target Data Overlay

With no additional qualification under the HLLevel command the target data is overlaid. Each HL Loop in the source was processed but only the last shipment HL Loop appears in the target data. This is because there is no path associated with the HLLevel command and therefore no automatic close occurrence for the target.



# Qualifying Hierarchical Loops

Global Variable Name	Scope	Local Variable Name	Special Variable Name	Scope	DI
StopSeq	Ses		DIOutType	Do...	CI
MapNameWithProje...	Int		DIOutFile	Do...	CI
Headerfinal	Ses		DIUserData	Do...	CI
GroupControlNumber	Int				
G_ASPE_S	Ses				
d	Ses				
WCMAP305Interch...	Int				
varxx	Ses				
mmiboolgrouptrue	Gro				
HeaderST02	Ses				
BUNDLEFLAG	Ses				
Boolean	Ses				
WCMAP305Session...	Ses				
SponsorId	Int				
INVOICE_LINE	Gro				
G_VATP_S	Ses				
G_VAT_CAT_Z_FLAG	Ses				
DatumTpsOntvangst	Ses				
TRAFIT	Can				

Since the CloseOccurrence command prevents data overlays, now you can add a CloseOccurrence command within the shipment HLevel for the target shipment record.

## Qualifying Hierarchical Loops

Input	HLLLevel() Only: CloseOccurrence 'S' Level	
ST*856*45920001~	0030	
BSN*30*01*050524*0049~		
HL*1**S~		
N1*SF**92*SHIP1~		
HL*2*1*O~	01000001S	SHIP1
PRF*ORD1*11113711**050523~		
HL*3*2*P~		
MAN*GM*PAC1111~	02000004O0000ORD2	
HL*4*1*O~		
PRF*ORD2*11113712**050523~		
HL*5*4*P~	05 P	PAC2222
MAN*GM*PAC2222~		
HL*6**S~		
N1*SF**92*SHIP2~		
HL*7*6*O~	01000006S	SHIP2
PRF*ORD3*11113711**050523~		
HL*8*7*P~		
MAN*GM*PAC3333~		
HL*9*6*O~	02000009O0000ORD4	
PRF*ORD4*11113712**050523~		
HL*10*9*P~		
MAN*GM*PAC4444~	05 P	PAC4444
CTT*10~		
SE*24*45920001~		

Overlay on Order

The target output contains both shipment levels, but we have an overlay on the Order level. If no Additional Qualification is added, a CloseOccurrence command may be needed. In this example, adding CloseOccurrence under each HLLLevel() will produce correct results.

# Qualifying Hierarchical Loops

The screenshot displays the 'WebSphere Data Interchange for Multiplatforms V3.2.1' interface. The main workspace shows a 'Data Transformation Map' configuration. On the left, the 'Source' is 'EDI Standard Transaction V12V3R1V856' with three tables. On the right, the 'Target' is 'Data Format V856RECU\_DICTIONARY V856RECU' with a hierarchical structure of loops: TRANSACTION\_HEADER, SHIPMENT\_LOOP, SHIPMENT\_DETAIL, ORDER\_LOOP, ORDER\_DETAIL, CONTAINER\_LOOP, CONTAINER\_DETAIL, ITEM\_LOOP, ITEM\_DETAIL, and CARTON\_DETAIL. The central tree view shows the '10 M HL Loop [Hierarchical Level]' selected, containing a 'MapTo' command and an 'HLevel' loop. A red arrow points to the 'HLevel' loop. Below the tree, a table lists various system variables.

Global Variable Name	Special Variable Name	Scope	Di
StopSeq		Ses	
MapNameWithProje...	DIOutType	Int.	Do...
HeaderFinal	DIOutFile	Ses	Do...
GroupControlNumber	DIUserData	Int.	Do...
G_ASPE_S		Ses	
d		Ses	
WCMAP308Interch...		Int.	
varxx		Ses	
mmbodgrouptrue		Gro	
HeaderST02		Ses	
BUNDLEFLAG		Ses	
Boolean		Ses	
WCMAP308Session...		Ses	
SponsorId		Int.	
INVOICE_LINE		Gro	
G_VATP_S		Ses	
G_VAT_CATT_Z_FLAG		Ses	
DatumTidOntvangst		Ses	
TS&PFF		C	

Removing the CloseOccurrence under each HLevel command and adding a Multiple Occurrence Qualification under each HLevel will also produce the correct results. In our example, EDI is the source data, the mapping is source based, and the Multiple Occurrence Qualification will be a MapTo command within the HLevel command.

## Qualifying Hierarchical Loops

### Input

- ▶ ST\*856\*45920001~
- ▶ BSN\*30\*01\*050524\*0049~
- ▶ HL\*1\*S~
- ▶ N1\*SF\*\*92\*SHIP1~
- ▶ HL\*2\*1\*O~
- ▶ PRF\*ORD1\*11113711\*\*050523~
- ▶ HL\*3\*2\*P~
- ▶ MAN\*GM\*PAC1111~
- ▶ HL\*4\*1\*O~
- ▶ PRF\*ORD2\*11113712\*\*050523~
- ▶ HL\*5\*4\*P~
- ▶ MAN\*GM\*PAC2222~
- ▶ HL\*6\*S~
- ▶ N1\*SF\*\*92\*SHIP2~
- ▶ HL\*7\*6\*O~
- ▶ PRF\*ORD3\*11113711\*\*050523~
- ▶ HL\*8\*7\*P~
- ▶ MAN\*GM\*PAC3333~
- ▶ HL\*9\*6\*O~
- ▶ PRF\*ORD4\*11113712\*\*050523~
- ▶ HL\*10\*9\*P~
- ▶ MAN\*GM\*PAC4444~
- ▶ CTT\*10~
- ▶ SE\*24\*45920001~

### Output

- ▶ 0030
- ▶ 01000001S SHIP1
- ▶ 02000002O0000ORD1
- ▶ 05 P PAC1111
- ▶ 02000004O0000ORD2
- ▶ 05 P PAC2222
- ▶ 01000006S SHIP2
- ▶ 02000007O0000ORD3
- ▶ 05 P PAC3333
- ▶ 02000009O0000ORD4
- ▶ 05 P PAC4444



The Input or source on the left is EDI with Hierarchical Level (HL) Loops and the Output or target on the right is the desired output. Shipment 1 and shipment 2 both with the orders that are associated with those shipments.

## Reference

- More information can be found in the WDI V3.3 Mapping Guide, Appendix B. Hierarchical loops.



More information can be found in the WebSphere Data Interchange Version 3.3 Mapping Guide, Appendix B. Hierarchical loops.

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