

SAP BW

Lesson 05: Data Acquisition Part 3



Extractors – LO Extraction



Purpose

➤ This course demonstrates the various data extraction methods.

➤ Extraction Methods covered

- Business Content Extraction from SAP R/3
- LO Cockpit Extraction
- Generic Extractors

➤ DataSource Enhancement



Delta Queue Maintenance

- 1. Transaction RSA7 in source system.
- 2. After successful initialisation (data load status green), you can see that the delta queue has been successfully generated (green) for that data source in RSA7.
- 3. Contains Delta records to be transferred in next delta run of the info package as well as the records that were transferred in the previous delta run.

BW Delta Queue Maintenance



Stat	DataSource	BW System	Total	Stat.
00	2LIS_02_SCL	B3TCLNT800	959	
00	2LIS_02_ITM	B3TCLNT800	944	
00	ORPM_PORT_ITEM_MANAGEMENT	B3TCLNT800	121	P
00	2LIS_11_VAITEM	T90CLNT090	94	
00	2LIS_11_VAHDR	T90CLNT090	56	
00	ORPM_BUCKET_FIN_PLANNING	B3TCLNT800	45	P
00	ORPCM_CM_2	B3TCLNT800	90	

Display data entries

Selection

Package to

Data Record (in Data Packet) to

Extraction Parameters

Data Pack. Size (in records)

Maximum number of records

Update mode

☒ Delta Update

☐ Delta Repetition

Check

Delta Queue



Display data entries

Selection

Package to

Data Record (in Data Packet) to

Extraction Parameters

Data Pack. Size (in records)

Maximum number of records

Update mode

☒ Delta Update

☐ Delta Repetition

Update mode Delta
Data Packet 1
Data records displayed 3

To check the delta records that will be transferred in next delta run of the info package.

3 records will be transferred in BI in next delta run of info package

Cancellat.	Doc. Date	Type	Cat	Postg date	Purch.Doc.	PGr	POrg
	22.03.2011	ECPO	F		3100087763	P04	1000
	22.03.2011	ECPO	F		3100087763	P04	1000
	22.03.2011	ECPO	F		3100087763	P04	1000

Delta Queue



Display data entries

Selection

Package to

Data Record (in Data Packet) to

Extraction Parameters

Data Pack Size (in records)

Maximum number of records

Update mode

☐ Delta Update

☒ Delta Repetition

Check

Delta records loaded in last delta run (1) + new delta records created (3)

Target system: SAP CRM 7.0

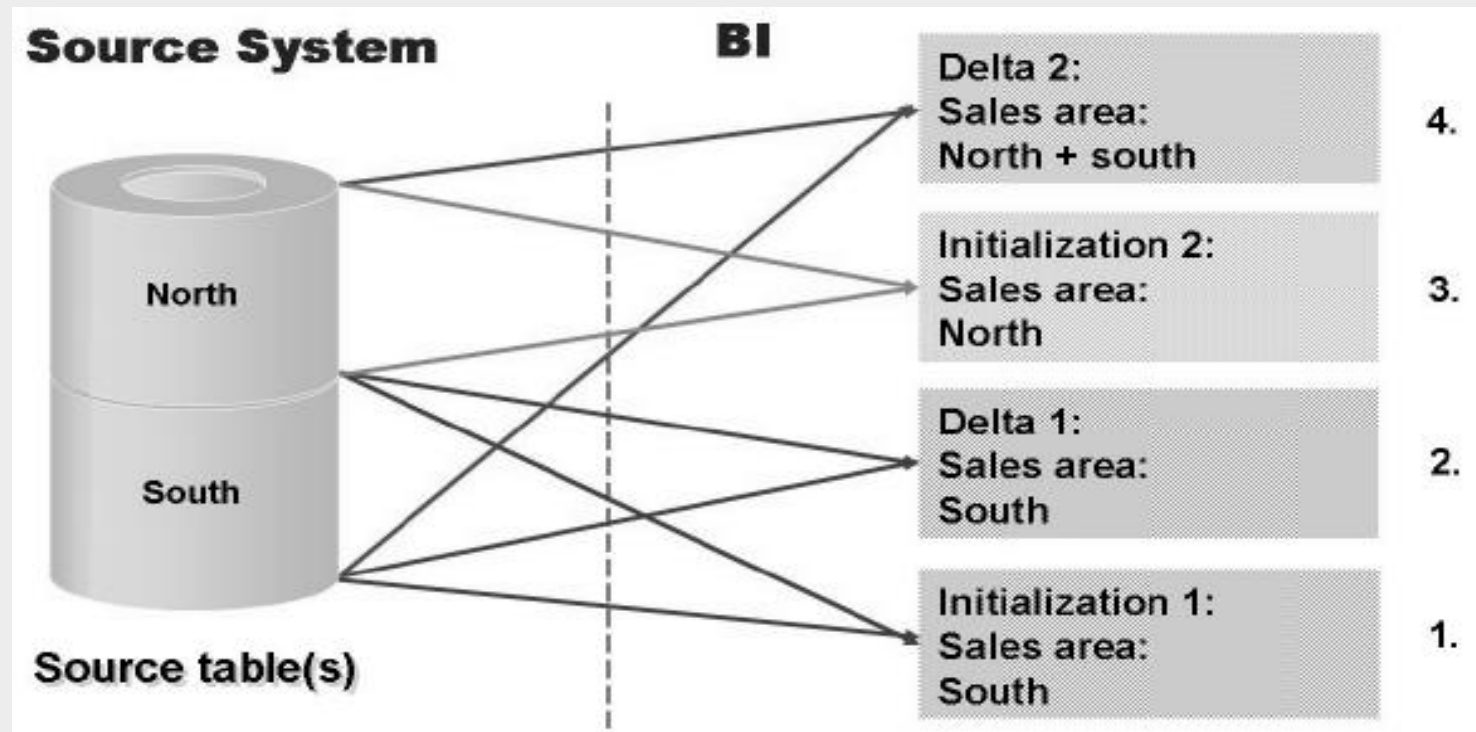
Update mode: Delta Repetition

Data Packet: 1

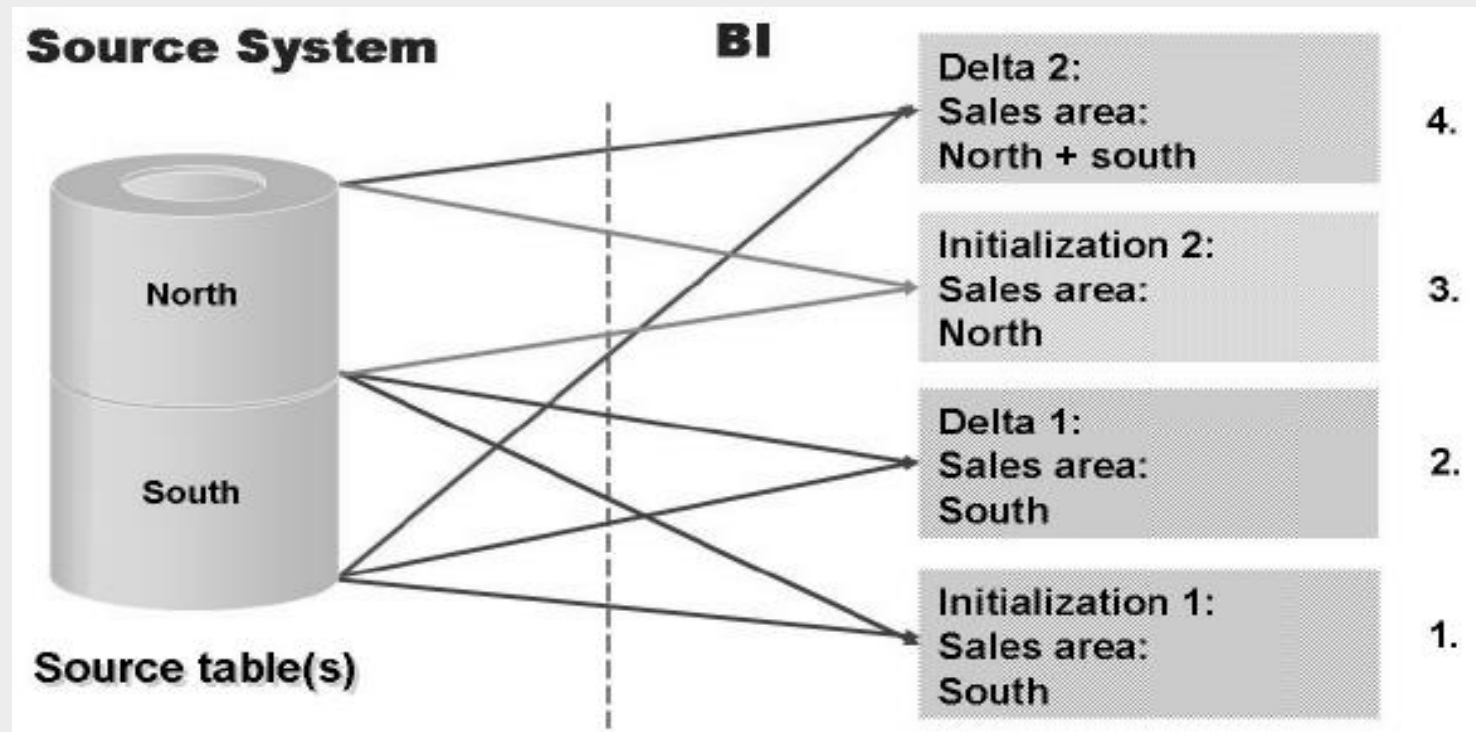
Data records displayed: 4

Cancellat.	Doc. Date	Type	Cat	CoCd	Purch.Doc.	PGr	POrg	LCurr	VP Start	VPer.End	Vendor	Inv. Pty
<input checked="" type="checkbox"/>	21.03.2011	ECPO	F	1000	3100087762	P04	1000	GBP			119320	
	22.03.2011	ECPO	F	1000	3100087763	P04	1000	GBP			119320	
	22.03.2011	ECPO	F	1000	3100087763	P04	1000	GBP			119320	
	22.03.2011	ECPO	F	1000	3100087763	P04	1000	GBP			119320	

Selective Initialisation



Selective Initialisation





Selective Initialisation

Info
package

Data Selection Processing Data Targets Update Schedule

Load transaction data from the source system

Enter Selections (Optional):

	InfoObject	Technical ...	Description	From Value	To Value	Ty...	D...	Ty...
	0EMPLOYEE	PERNR	Personnel Number	00000001	00004999			
	0CALMONTH	KMONTH	Calendar year / mo	04 . 2009	12 . 2012			
	0CALDAY	KDAY	Calendar					
	0ORGUNIT	ORG_UNIT_WF	Organizational Unit					

Data Selection Processing Data Targets **Update** Schedule

Update Mode

- ☐ Full Update
- ☐ Delta Update
- ☒ Initialize Delta Process
 - ☒ Initialization with Data Transfer
 - ☐ Initialize Without Data Transfer
 - ☐ Early Delta Initialization

Data Update Type in the Data Targets

- ☒ Always update data, even if no master data exists for the data
- ☐ Do not update data if no master data exists for a characteristic

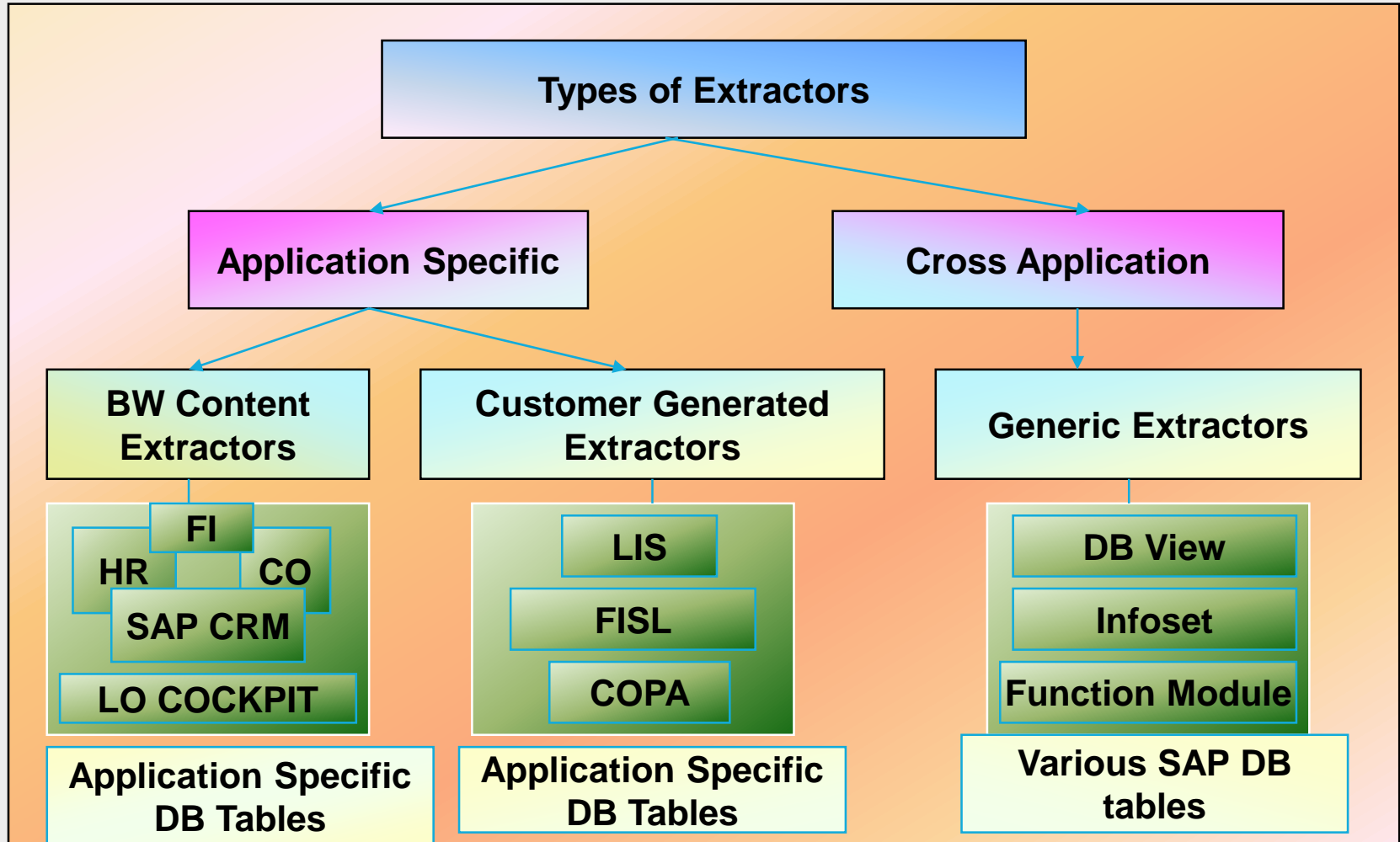


Delta Update -Selections(Scheduler)

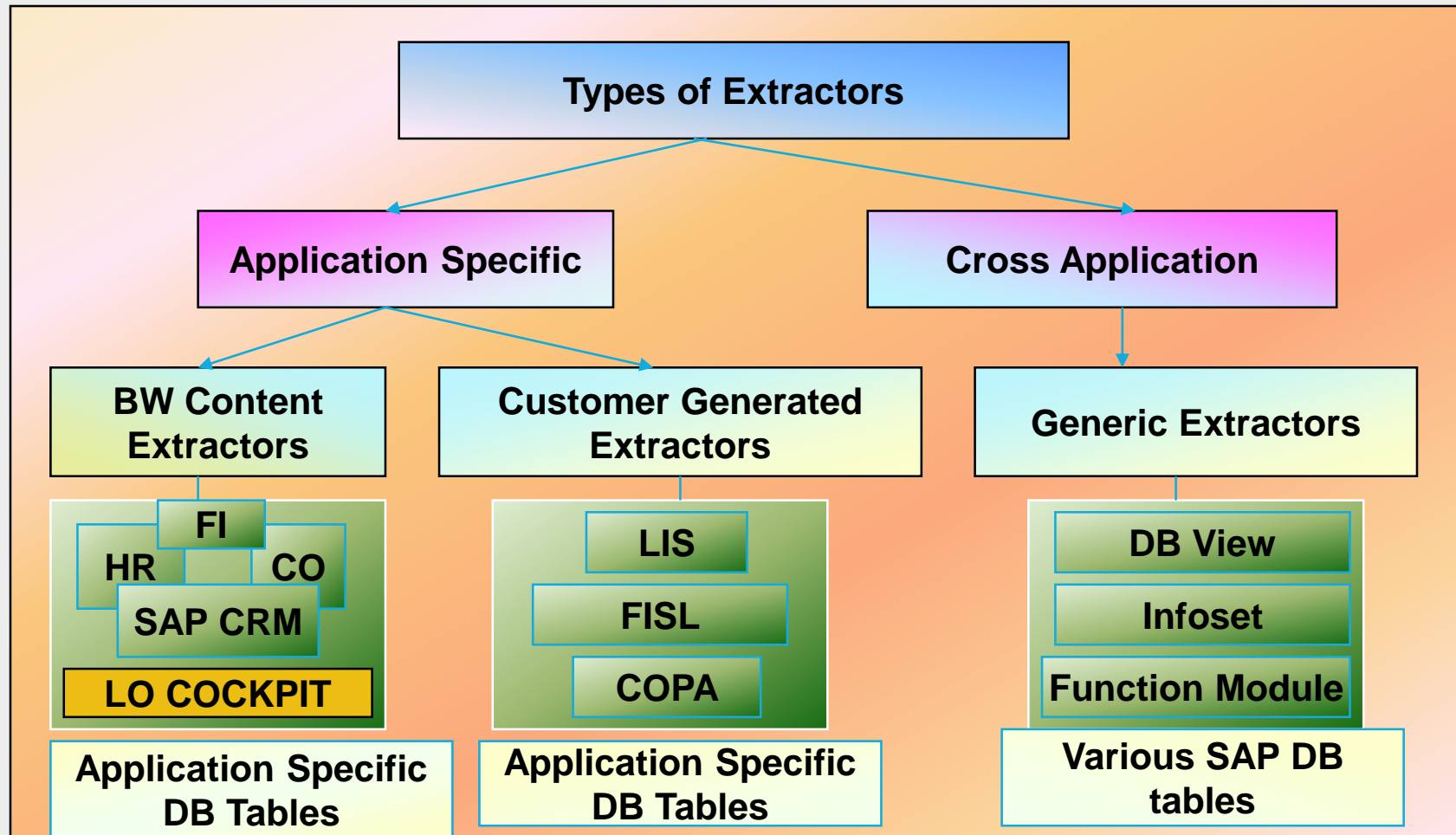
Initialization for this Source				
Initial Selections				
Ac...	Stat	InfoPackage	Selection d...	Selections
✓	○○	TI 0HR_PT_1 > 0PT_C01 (PERNR <50	15.10.2010	0EMPLOYEE=00000001 - 00004999
✓	○○	TI 0HR_PT_1 > 0PT_C01 (PERNR >49	15.10.2010	0EMPLOYEE=00005000 - 00009999
✓	○○	TI 0HR_PT_1 > 0PT_C01 (PERNR >99	15.10.2010	0EMPLOYEE=00010000 - 00014999
✓	○○	TI 0HR_PT_1 > 0PT_C01 (PERNR >14	15.10.2010	0EMPLOYEE=00015000 - 00019999
✓	○○	TI 0HR_PT_1 > 0PT_C01 (PERNR >19	15.10.2010	0EMPLOYEE=00020000 - 00100999
✓	○○	TI 0HR_PT_1 > 0PT_C01 (PERNR >10	15.10.2010	0EMPLOYEE=00101000 - 00109999
✓	○○	TI 0HR_PT_1 > 0PT_C01 (PERNR >10	15.10.2010	0EMPLOYEE=00110000 - 00119999

Go to info package → Option 'Scheduler'
→Initializations options for source system

Types of Extractors



LO Data Extraction : Overview

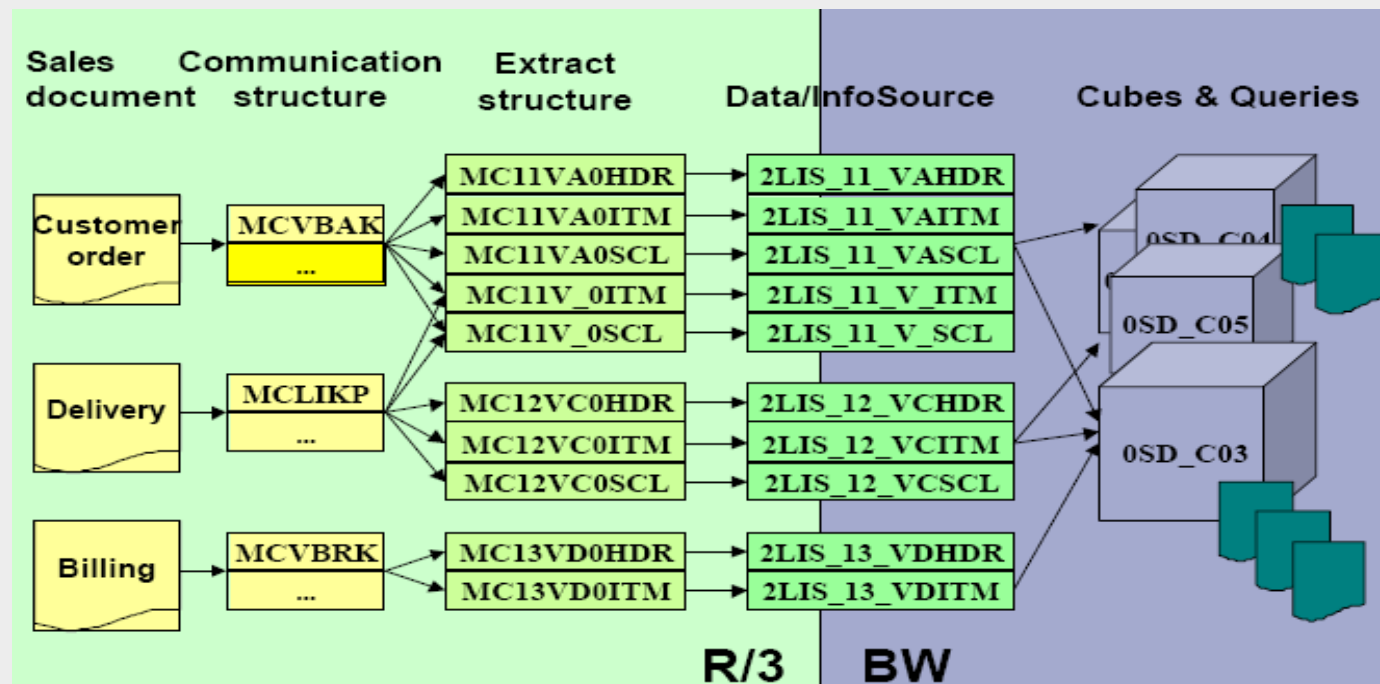




LO Cockpit

- Push Type Extractors**

➤ Logistics Customizing Cockpit provides a simplified way to extract logistics data and transfer it to SAP Business Information Warehouse.



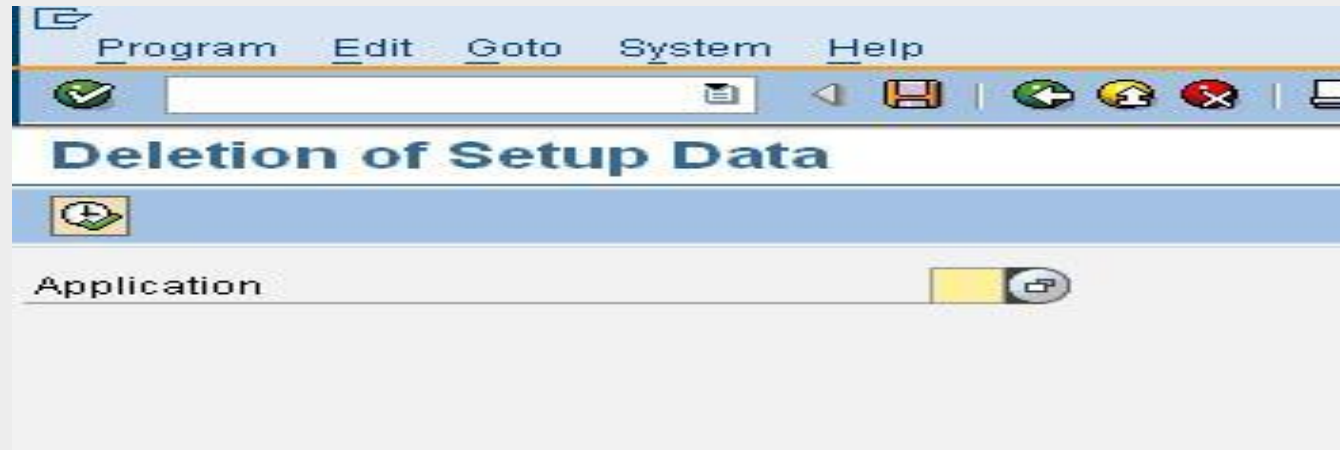


LO Data Extraction : Data Flow

- As shown in the figure the document data for various applications like Customer order, delivery and billing is first transferred to various Communication Structures.
- These communication structures are used to form various extract structures in R/3 which consist of various DataSources like 2LIS_11_VAHDR, 2LIS_11_VAITM etc.
- These DataSources then can be replicated to BW.
- Then by creating transformation and defining the transformation the data is loaded into various data targets like InfoCube and ODS, thus available for reporting.



Delete set up tables (LBWG)



In transaction LBWG enter the application number for which you want to delete the set up tables.

For e.g. For 2LIS_11_VAITEM enter the number 11 and execute.

Delete set up tables before filling to avoid any duplicate entries, which can cause inconsistency in data in BI.

Initialization/Simulation (OLI*BW) or from SBIW



Display IMG

Existing BC Sets BC Sets for Activity Active

Structure

- Data Transfer to the SAP Business Information Warehouse
 - General Settings
 - Business Content DataSources
 - Settings for Application-Specific DataSources (PI Basis)
 - Settings for Application-Specific DataSources
 - Utilities Industry
 - Media Companies
 - Bank Profitability Analysis
 - Contract Accounts Receivable
 - Cross-Application Components
 - Financial Accounting - SAP
 - Overhead Cost Controlling
 - Profitability Analysis
 - Investment Management
 - Enterprise Controlling
 - Real Estate Management
 - Logistics
 - Managing Extract Structures
 - Logistics Extract Structures
 - BW Log
 - Initialization
 - Delete the Content of the Data Warehouse
 - Filling in the Data Warehouse
 - Cross-Application Components
 - Application-Specific DataSources
 - Inventories
 - Perform setup - Purchasing
 - Perform setup - Production

Statistical setup of info structures from purchasing documents

Document data restriction

Archiving Session		to	
Purch. Organization		To	
Purchasing document			
Document Date			

Control of recompilation run

Name of run	<input checked="" type="checkbox"/>
<input type="checkbox"/> New run?	
Termination date	23.03.2011
Termination time	06:52:14
<input type="checkbox"/> Block all documents?	
<input checked="" type="checkbox"/> Extraction structures BW	

Give a name to the job

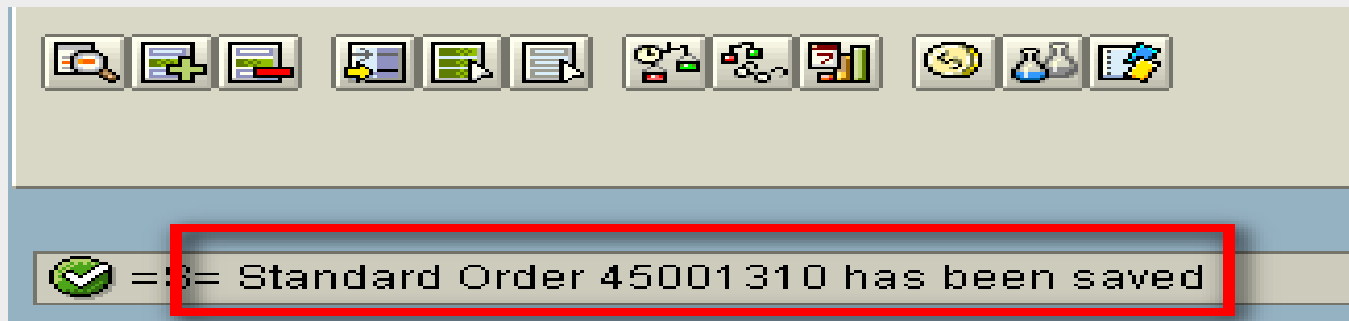
Filling set up tables from SBIW / OLI*BW



V1 Update (Synchronous)

➤ It's a time-critical update used for updating the actual transaction tables.

➤ If you create/change a purchase order (me21n/me22n), when you press 'SAVE' and see a success message (PO.... changed..), the update to underlying tables EKKO/EKPO has happened (before you saw the message). This update was executed in the V1 work process.





V2 Update (Asynchronous)

➤ It's a non-time-critical update used for updating statistics tables related to the transaction tables.

➤ For instance, after a Sales order entry transaction is completed, the corresponding sales order tables would be updated in V1 mode, and the corresponding statistics tables would be updated in V2 mode.



Update Modes in LO Cockpit

➤ There are four Update Modes in LO Extraction

- Direct Delta
- Queued Delta
- Un-serialized V3 Update



Update Modes in LO Cockpit

LO Data Extraction: Customizing Cockpit

Tcode : LBWE

Source data	Structure	DataSource	Update	Update Mode
Logistics applications				
02 : Purchasing			Job Control	Queued Delta
Extract structures				
MC02M_0ACC: Extraction Purchasing (Account)	Mainte...	2LIS_02_ACC	Active	
MC02M_0CGR: Produced Activity: Delivery of Confirms	Mainte...	2LIS_02_CGR	Active	
M	Mainte...	2LIS_02_HDR	Active	
M	Mainte...	2LIS_02_ITM	Active	
M	Mainte...	2LIS_02_SCL	Active	
M	Mainte...	2LIS_02_SCN	Active	
M	Mainte...	2LIS_02_SGR	Active	
03 : Inventor			Job Control	Unserialized V3 ...
04 : Shop Fl			Job Control	Queued Delta
05 : Quality			Job Control	Queued Delta
06 : Invoice			Job Control	Direct Delta
08 : Shipment			Job Control	Queued Delta

Direct Delta



Data Flow for Logistics Extraction with Direct Delta

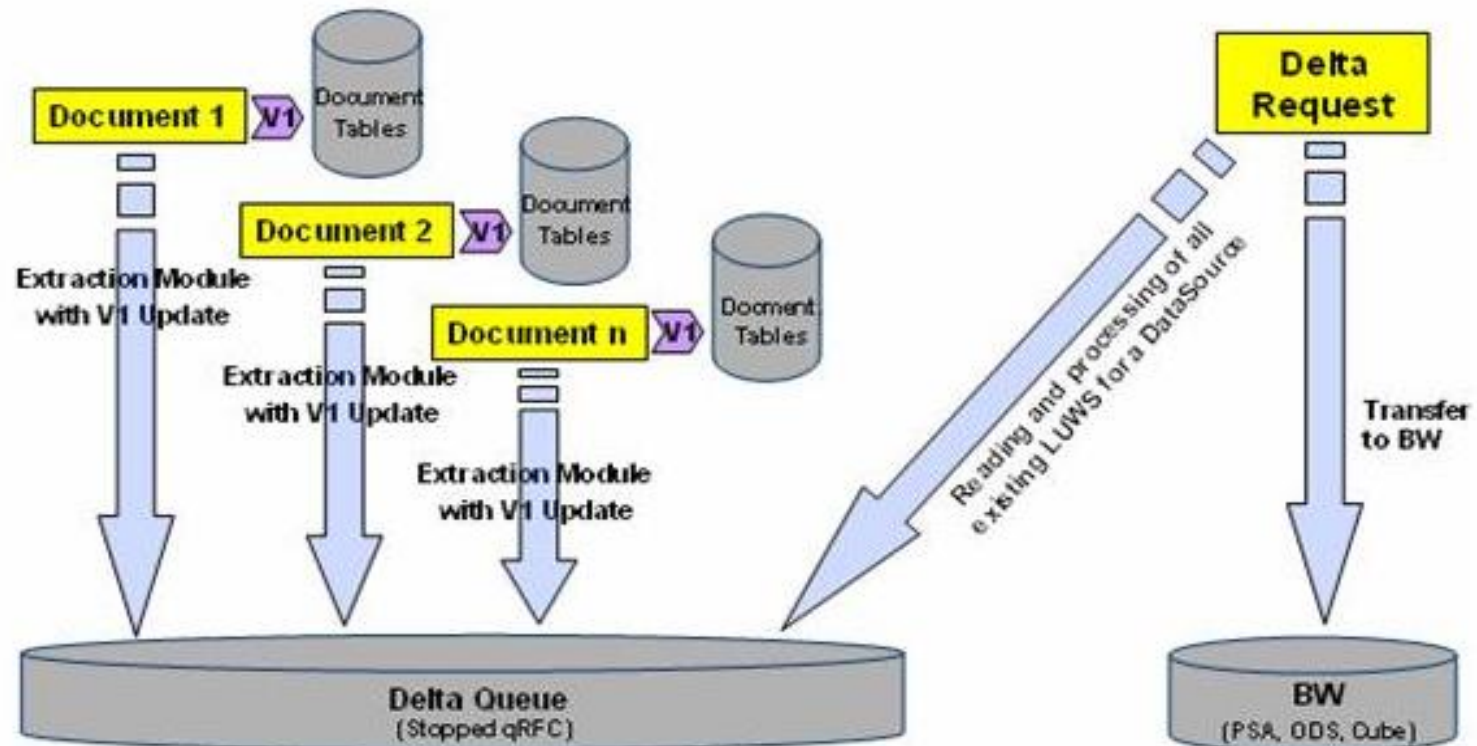


Fig.3: Direct Delta update mechanism

Direct Delta



BW Delta Queue Maintenance

Count has been increased.

Sta...	DataSource	bw system	Total
00	2LIS_02_SCL	ZLS_BWDE5	17
00	2LIS_08TRTK	ZLS_BWDE5	2
00	2LIS_11_VAIRM	ZLS_BWDE5	2
00	2LIS_08TRTK2	ZLS_BWDE5	1

Monitor for qRFC

DataSource 2LIS_11_VAIRM
Target system ZLS_BWDE5
Update mode Delta
Data Packet 1
Data records 1 displayed

Cancellat.	Document	Rj	It	Rej.status	Item	Itm	IB
	45001310	A	C	A	1	C	C



Direct Delta

- Extraction data is transferred directly to the BW delta queues with each document posting (V1 update).
- Sequence of the transfer of document agrees with the chronological order of data creation
- Each document posting with delta extraction leads to exactly one LUW in the respective BW delta queues
- Independent of V2 update result
 - No need to schedule a job at periodic intervals to update delta queue
- Recommended for customers with low number of postings
- No documents can be posted during set up table filling and delta initialisation
- BW Delta queue is read when a delta load is executed from BW.

Queued Delta



Data Flow for Logistics Extraction with Queued Delta

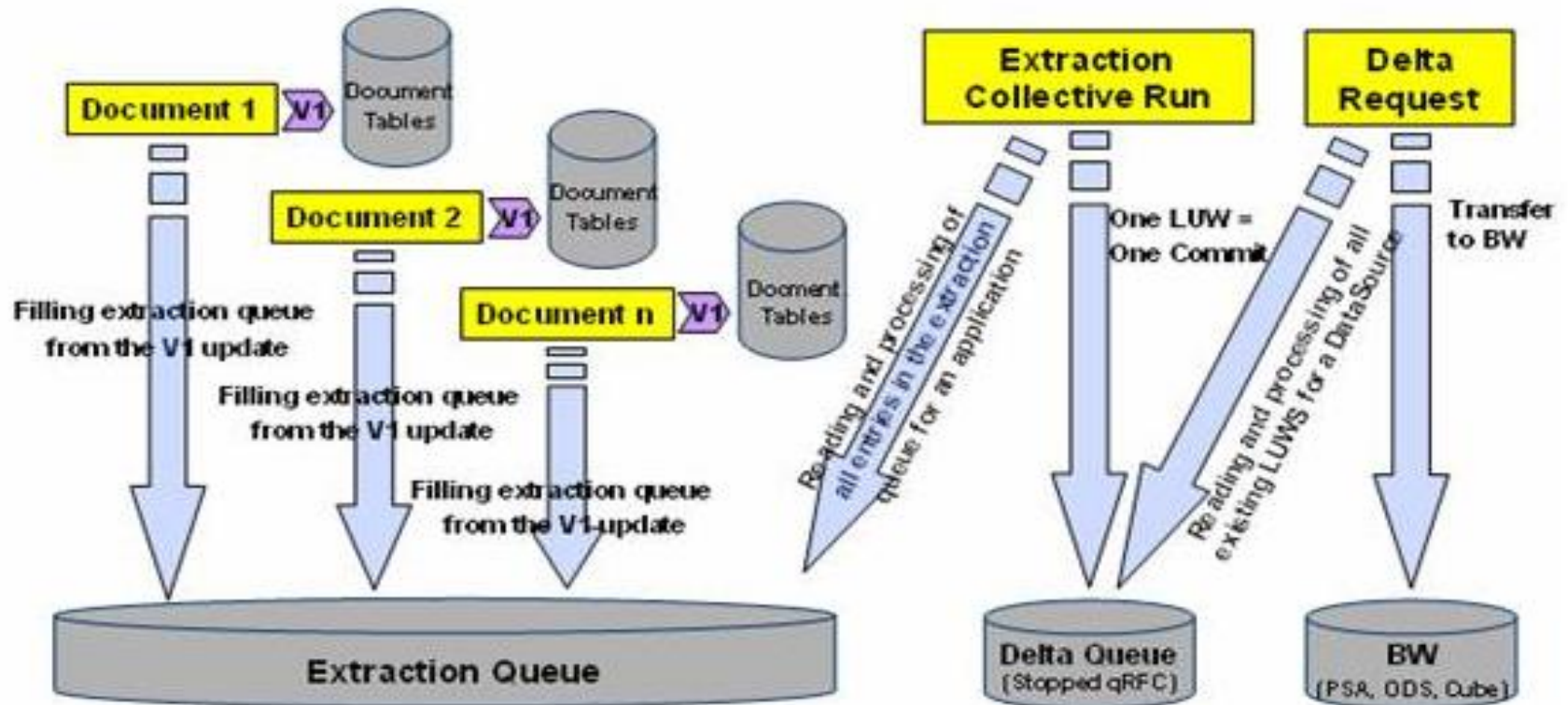
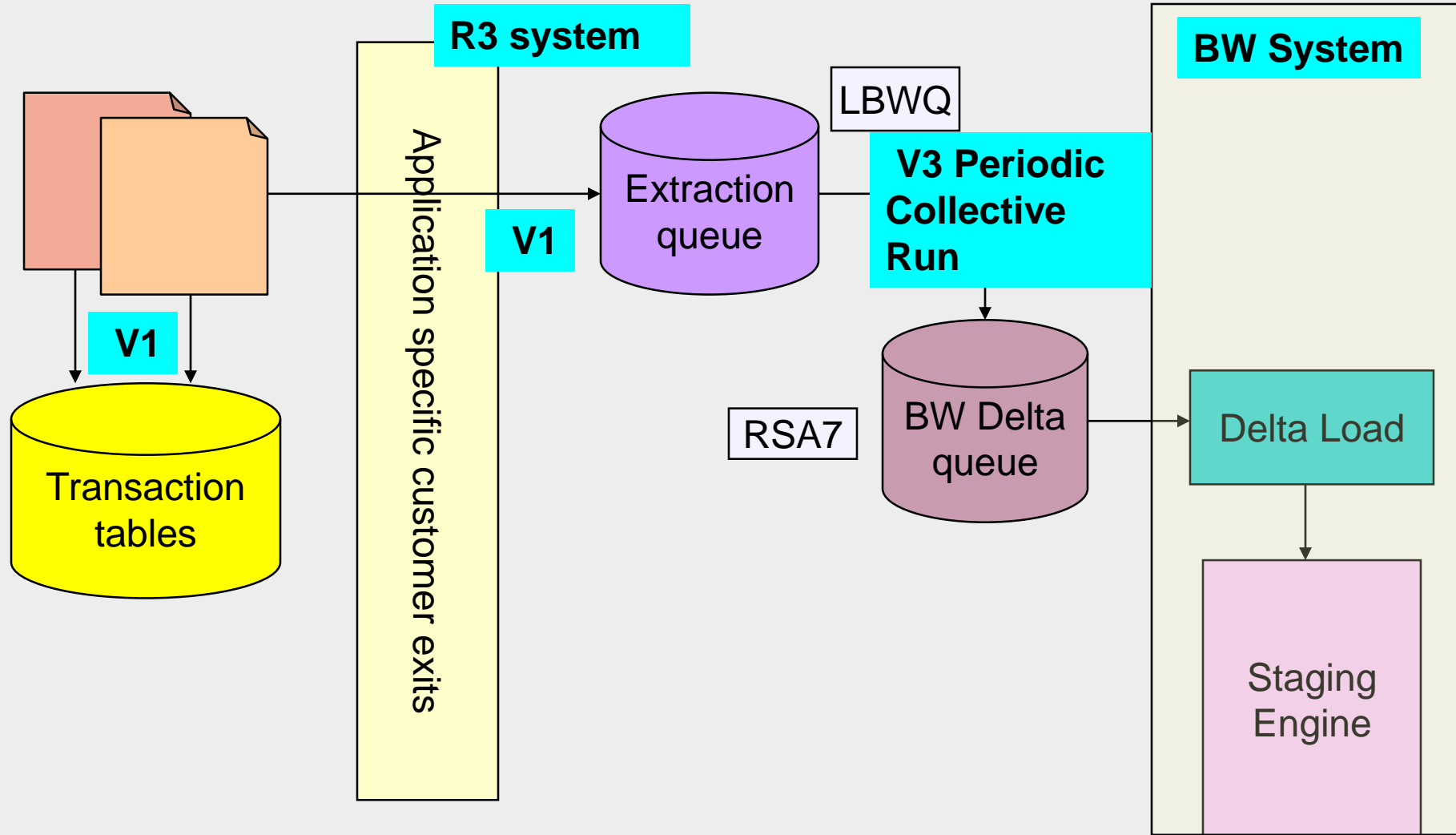


Fig.4: Queued Delta update mechanism

Queued Delta



Queued Delta (LBWQ)



qRFC Monitor (Outbound Queue)

Number of LUW entries

Number of displayed entries: 779
Number of displayed queues: 4

<input checked="" type="checkbox"/>	C1.	Queue			
<input type="checkbox"/>	110	MCEX			2
<input type="checkbox"/>	110	MCEX03	NONE		4
<input type="checkbox"/>	110	MCEX04	NONE		772
<input type="checkbox"/>	110	MCEX11	NONE		1

The record has been written in Extr. Queue.

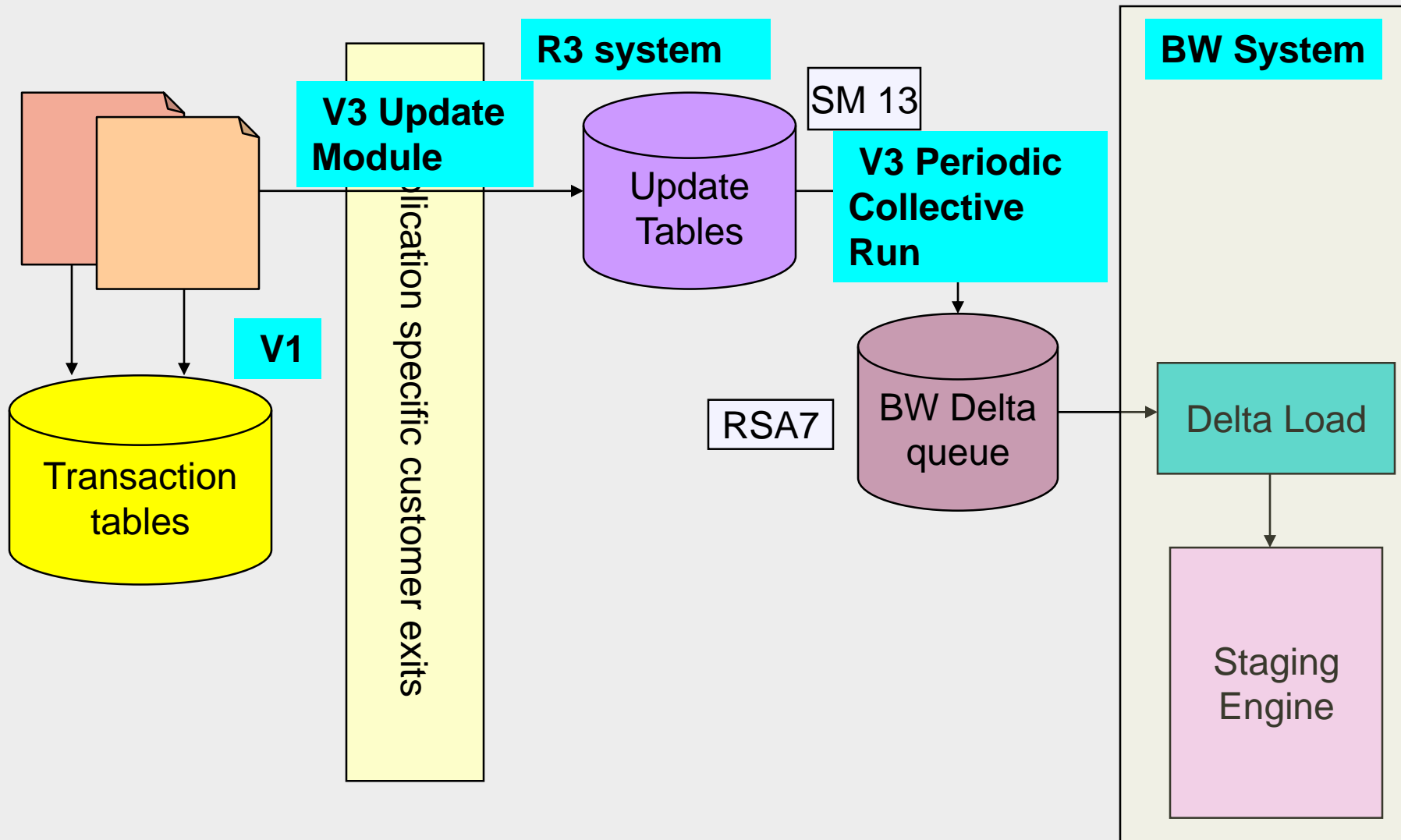


Queued Delta

- Extraction queue is updated in a V1 update
- Collective run as usual for transferring data into the BW delta queue
- Serialization ensured
- Recommended for customers with a high occurrence of documents
- Document postings can be started as soon as setup tables are filled.(No down time during delta init completion)
- BW Delta queue is read when a delta load is executed.



Un-Serialized V3 Update



Un-Serialized V3 Update



Data Flow for Logistics Extraction with V3 Update

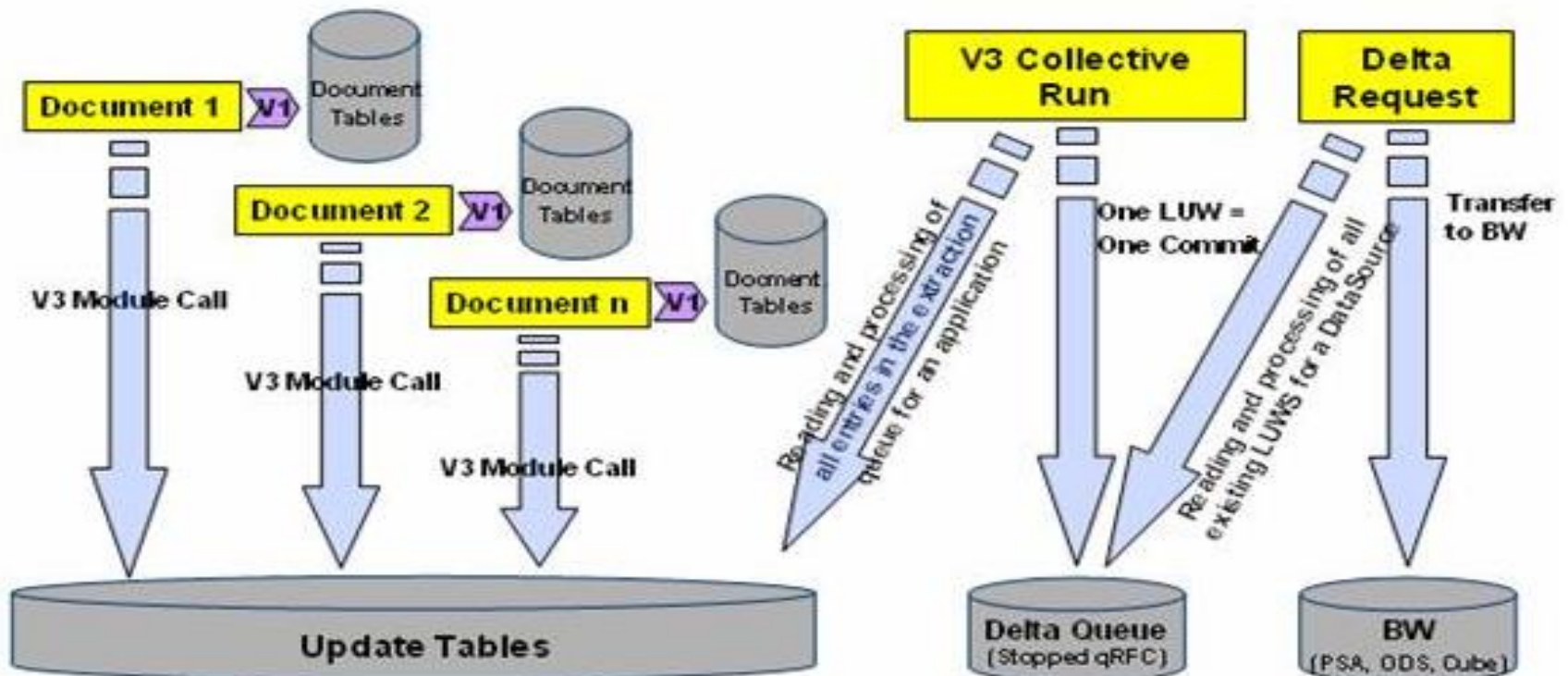


Fig.5: (Unserialized) V3 Delta update mechanism



Un-Serialized V3 Update

- Extraction data for written as before into the update tables with a V3 update module
- V3 Periodic collective run transfers the data to BW Delta queue
- The method “Unserialized V3 Update” does not ensure serialization of the document data. Update to the DataStore objects is not recommended if serialization is desired
- Extraction dependent on V2 update.
- Delta queue is read when a delta load is executed from SAP BW.



Update Queue (SM13)

Update Records: Main Menu

Client

User

Status

☐ Terminated

☐ To be updated

☐ V1 executed

☒ V2 executed

☐ All

Update is active

Info



Update Queue (SM13)

Update Records						
Update modules						
CInt	User	Date	Time	TCode	Information	Status
000	xxxxxx	12.08.2009	13:36:32	VA01		V2
*** 1 update records found ***						



V3 Collective Run- Settings

Set up V3 update
Set the start time and
print parameters.
Schedule batch jobs

Source data	Structure	DataSource	Update	Update Mode
Logistics applications				
02 : Purchasing			Job Control	Queued Delta
03 : Inventory Controlling			Job Control	Queued Delta
04 : Shop Floor Control			Job Control	Queued Delta
05 : Quality Management			Job Control	Queued Delta
08 : Shipment			Job Control	Queued Delta
11 : SD Sales BW			Job Control	Queued Delta
Extract structures				
MC11VA0HDR: Extraction SD Sales BW: Document Header	Maintenance	2LIS_11_VAHDR	Active	
MC11VA0ITM: Extraction SD Sales BW: Document Item	Maintenance	2LIS_11_VAITM	Active	
MC11VA0KON: Extraction SD Sales BW: Document Condition	Maintenance	2LIS_11_VAKON	Active	
MC11VA0SCL: Extraction SD Sales BW: Document Schedule	Maintenance	2LIS_11_VASCL	Active	
MC11VA0STH: Extraction MD Order Header Status	Maintenance	2LIS_11_VASTH	Inactive	
MC11VA0STI: Extraction MD Order Item Status	Maintenance	2LIS_11_VASTI	Active	
MC11V_0ITM: Extraction SD Sales BW: Document Item	Maintenance	2LIS_11_V_ITM	Active	
MC11V_0SCL: Extraction SD Sales BW: Allocation Schedule	Maintenance	2LIS_11_V_SCL	Active	
MC11V_0SSL: Extraction MD Sales: Order Delivery	Maintenance	2LIS_11_V_SSL	Active	
12 : LE Shipping BW			Job Control	Queued Delta
13 : SD Billing BW			Job Control	Queued Delta
17 : Plant Maintenance BW			Job Control	Queued Delta
18 : Customer Service BW			Job Control	Queued Delta
40 : Retailing			Job Control	Queued Delta
43 : BW: Retail POS Data: Cashier			Job Control	Queued Delta

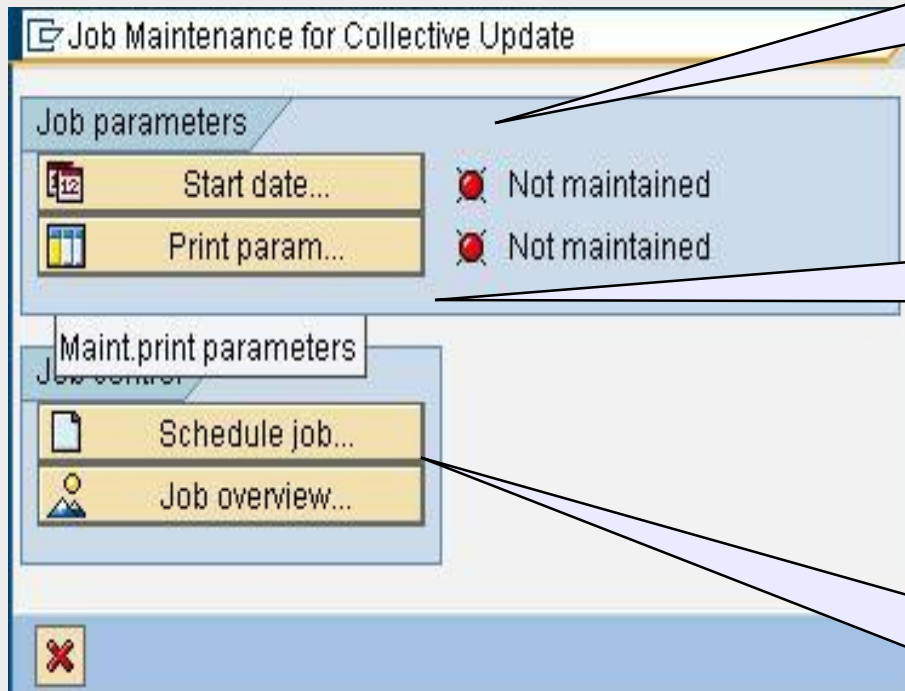
V3 Collective Run Settings



In Start Date Select
immediate scheduling

Give the print
parameters

Schedule the job and check the
job overview in SM37



Step 6 : Fill set up table



Display IMG

Existing BC Sets BC Sets for Activity

Structure

- Data Transfer to the SAP Business Information Ware
 - General Settings
 - Business Content DataSources
 - Settings for Application-Specific DataS
 - Settings for Application-Specific DataSources (PI)
 - Utilities Industry
 - Media Companies
 - Bank Profitability Analysis
 - Contract Accounts Receivable
 - Cross-Application Components
 - Financial Accounting - Special Purpose Ledger
 - Overhead Cost Controlling
 - Profitability Analysis
 - Investment Management
 - Enterprise Controlling
 - Real Estate Management
 - Logistics
 - Managing Extract Structures
 - Logistics Extraction Structures Customizi
 - BW Log
 - Initialization
 - Delete the Contents of the Setup Tabl
 - Filling in the Setup Table**
 - Cross-Application Selection Parameters
 - Application-Specific Setup of Statistical Data
 - Inventory Management - Perform Setup
 - Perform setup - Purchasing
 - Perform setup - Production

Filling set up tables from SBIW / OLI*BW

Statistical setup of info structures from purchasing documents

Document data restriction

Archiving Session	
Purch. Organization	
Purchasing document	
Document Date	

Control of recompilation run

Name of run	<input checked="" type="checkbox"/>
<input type="checkbox"/> New run?	
Termination date	23.03.2011
Termination time	06:52:14
<input type="checkbox"/> Block all documents?	
<input checked="" type="checkbox"/> Extraction structures BW	

Give a name to the job



Some Useful sites

➤ www.sdn.sap.com

➤ www.help.sap.com

➤ www.service.sap.com

