LO Extraction: Part 3 Extractor Logic

Applies to:

SAP BI, SAP BW, ECC, ABAP, Business Intelligence

Summary

This part of the article explains the logic behind the LO Extractors and the relevant backend tables with the details on important function modules.

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Author Bio

P Renjith Kumar is presently working in SAP Labs India Pvt Ltd and specializes in Extraction and Modeling areas of BI. Basically as an ABAP consultant, he has extensive cross functional experience and has been with end to end SAP ERP and BI implementation projects across manufacturing domain.
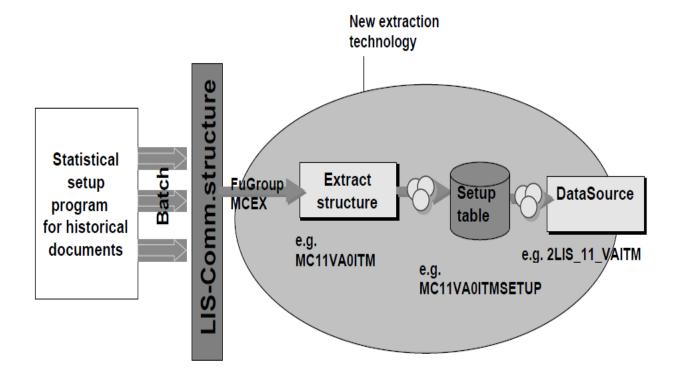
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The Design of the New Extract Structures

The extract structures are a fundamental part of the extraction concept. These are R/3 –DDIC structures that contain all fields, whose data contents are transferred from the transaction data via the Datasource to BW, when you activate the relevant extraction.

Most of the extract structures for applications 11, 12 and 13, are structured in such a way , so that most of the fields within them are filled directly from the field contents of the LIS Communication structures. Some additional fields are determined in the extraction module. Every LIS communication structure, that is used to fill an extract structure, is assigned to an include structure in the extract structure. When you are adding extra fields, whose field names are identical in several LIS communication structures intended for use in an extractor, it is possible to assign uniquely, the LIS communication structures, from which the data contents are transferred. However, this does not mean that you can include a field with the same name extract structure.

This extract structure concept allows you to include other fields without modification – as Well as user-defined fields, which were included using append technology, in the Corresponding include of the LIS communication structure - in the extract structures. They are then automatically filled with the value from the corresponding LIS communication structure.

Datasource

A BW datasource is a structure, which is created in the source system and replicated to the BW system. Maintaining a datasource in a source system is doing any changes related to the datasource. It could be adding/deleting fields or checking the flags in the datasource like the hide and selection flag. Also, if the datasource is provided in the LO Cockpit, changes can be made there too depending on how the extraction of data is made for that datasource. Extraction could be of flat file extraction or of multiple flat structures i.e., hierarchies. There are four types of Datasource:

1. Datasource for transaction data
2. Datasource for master data
    i. Datasource for attributes
    ii. Datasource for texts
    iii. Datasource for hierarchies

Datasource for LO extraction is delivered by SAP as a part of business content. It has the naming convention

2LIS_<Application_Componnet>_<Event>_<Suffix>

Application Component = 2 digit number, It gives info related to application. E.g.
11 specifies Sales,
12 specifies shipping,
13 specifies Billing,

Event = Gives transaction name that provides the data for the application. E.g.: VA means creating, changing, and diaplaying sales order.

Event VA means creating, changing or deleting orders.
Event VB means creating, changing or deleting quotations.
Event VC means creating, changing or deleting deliveries.
Event VD means creating, changing or deleting billing documents.

Suffix = It details the datasource, what level of data is extracted etc.
HDR represents Header data,
 ITM represents Item data,
SCL represents Schedule line data,
KON represents Conditions data

Example:

Datasource: 2LIS_11_VAHDR

This extracts data from Application component 11, that is Sales and Event is VA which is of sales order creation/change and the header data is extracted.

Datasource Activation

This is done at RSA5 transaction; Once this is done you can see the activated datasource in RSA6 transaction. Initially the datasource will be in D (Delivered) version, Once it is activated it will come to A(Active) version, if you do any changes it will become M(Modified) version, then you need to activate again.

Extraction Structure

Extraction structure MC<Application><Event/group of events>0<Suffix>;

where MC is derived from the associated communication structures and <Suffix> is optional

Examples:

MC11VA0ITM: Extraction structure for the Datasource 2LIS_11_VAITM

MC02M_0HDR: Extraction structure for the DataSource 2LIS_02_HDR, where M_ indicates the group for the events like
MA (order),
MD (delivery schedule),
ME (contact) and
MF (request).

Setup Table

Restructuring table (= setup table) <Extraction structure>SETUP
Example:
Extraction structure: *MC11VA0ITM* □Restructuring table: *MC11VA0ITMSETUP*

2LIS_11_VAHDR	**- MC11VA0HDRSETUP**
2LIS_11_VAITM	**- MC11VA0ITMSETUP**
2LIS_11_V_ITM	**- MC11V_0ITMSETUP**

Extractors

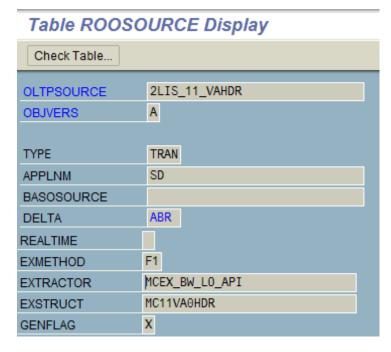Extractors enable the upload of business data from source systems into the data warehouse

Example: MCEX_BW_LO_API

You can check this extractor in SE37.

Datasource Table

The table ROOSOURCE have all details about the datasource. You can give the input as your datasource name and get all relevant details about the datasource

Table ROOSOURCE

Table ROOSOURCE Display

Check Table...

OLTPSOURCE	2LIS_11_VAHDR
OBJVERS	A
TYPE	TRAN
APPLNM	SD
BASOSOURCE	
DELTA	ABR
REALTIME	
EXMETHOD	F1
EXTRACTOR	MCEX_BW_LO_API
EXSTRUCT	MC11VA0HDR
GENFLAG	X

Real time datasource

The "Real-time enabled" indicator determines whether a delta-enabled DataSource can supply data for a real-time demon.
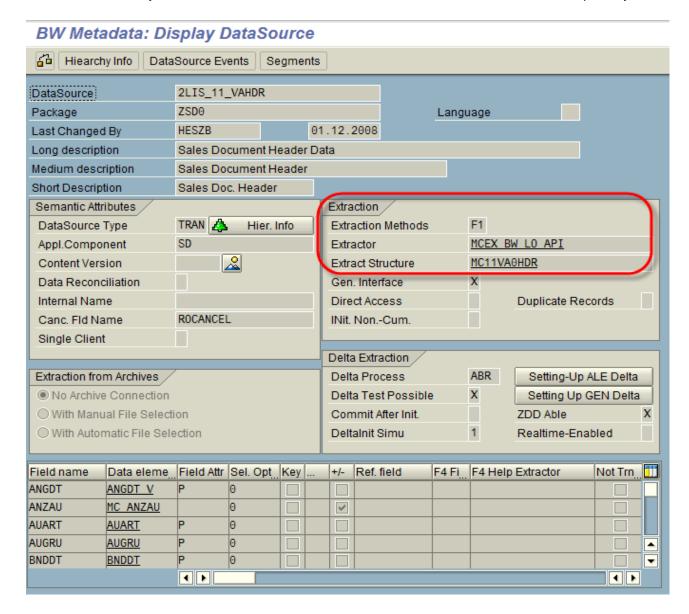
Extraction Method

Depending on the extraction method, this field contains:

- 'V': DDIC name of the transparent table or the databank view used for generic extraction.

- 'F1': Name of the function module for the extraction (template in the function group RSAX, FB RSAX_BIW_GET_DATA)

- 'F2': Name of the function module for the extraction (template in the function groups RSAX, FB RSAX_BIW_GET_DATA_SIMPLE)

- 'D': DDIC name of the name from which texts are to be extracted.

- 'Q': Functional area of the ABAP query (<4.6) or InfoSet of the InfoSet Query (>4.6).

- 'A': For reaons of consistency, the DDIC name of the append structure

Information about datasource
In transaction RSA2 you can find all information about datasource, This is called datasource repository.
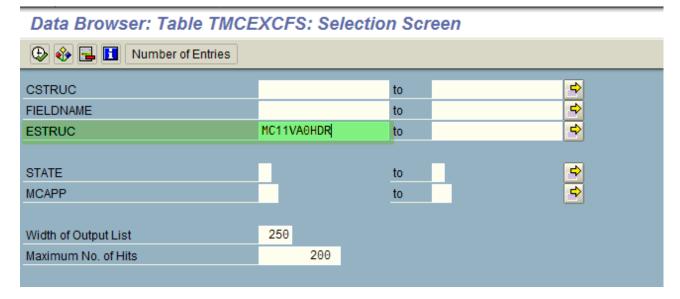
Extract Structure administration tables
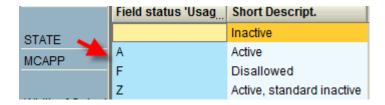
The interaction of the LIS communication structures with the extract structures is controlled, amongst other things, by the table TMCEXCFS, in which information about the fields that you have selected, or the fields which are not available for selection, is contained for all LIS communication structures.

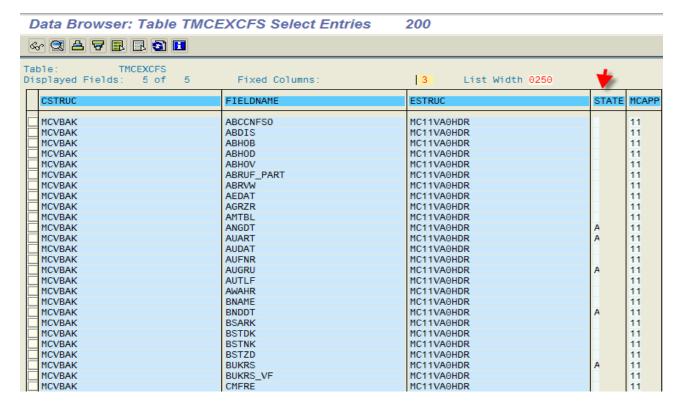**TMCEXCFS : LO Data Extraction: Field Status of Communication Structures**

Data Browser: Table TMCEXCFS: Selection Screen

CSTRUC		to
FIELDNAME		to
ESTRUC	MC11VA0HDR	to
STATE		to
MCAPP		to
Width of Output List	250	
Maximum No. of Hits	200	

Give the extract structure name that you got from **RSA2/ROOSOURCE**.

It will show the state of each field with possible entries as given below

	Field status 'Usag...	Short Descript.
STATE		Inactive
MCAPP	A	Active
	F	Disallowed
	Z	Active, standard inactive
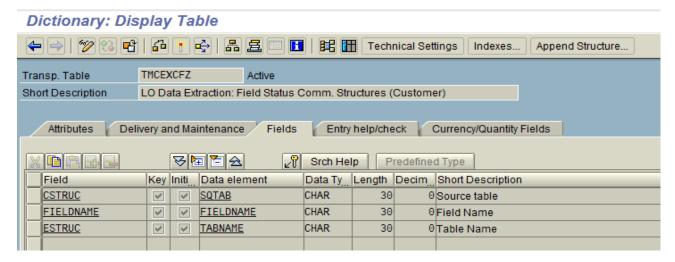
CSTRU means communication structure and the filed status is given as output

Customer defined fields
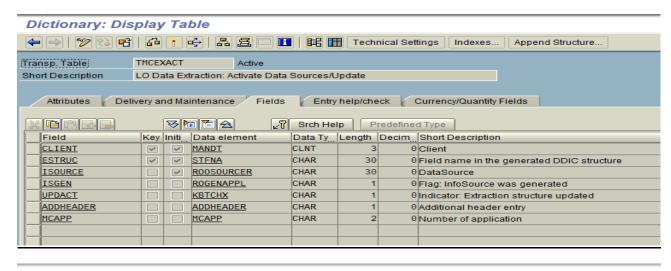
In table TMCEXCFZ, all additional fields that the customer has chosen are recorded
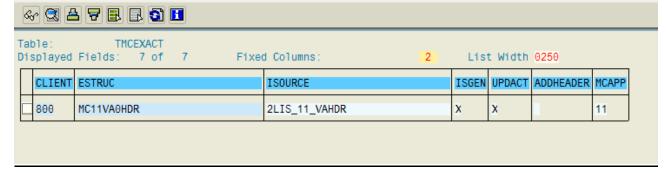
Datasource assignment and generation

The extract structures are assigned to their DataSources using table TMCEXACT. In addition, in TMCEXACT, the activation status for the extraction is saved.The DataSource is generated on the basis of these tables (for example, according to the enhancement of an extract structure).

Dictionary: Display Table

← → | ⌕ ⌕ | ⌗ | ⌗ ⌗ ⌗ | ⌗ ⌗ ⌗ ⌗ | ⌗ ⌗ | **Technical Settings** | **Indexes...** | **Append Structure...**

| Transp. Table | TMCEXACT | Active |
| Short Description | LO Data Extraction: Activate Data Sources/Update | |

| Attributes | Delivery and Maintenance | **Fields** | Entry help/check | Currency/Quantity Fields |

Field	Key	Initi..	Data element	Data Ty..	Length	Decim..	Short Description
CLIENT	✓	✓	MANDT	CLNT	3	0	Client
ESTRUC	✓	✓	STFNA	CHAR	30	0	Field name in the generated DDIC structure
ISOURCE		✓	ROOSOURCER	CHAR	30	0	DataSource
ISGEN			ROGENAPPL	CHAR	1	0	Flag: InfoSource was generated
UPDACT			KBTCHX	CHAR	1	0	Indicator: Extraction structure updated
ADDHEADER			ADDHEADER	CHAR	1	0	Additional header entry
MCAPP			MCAPP	CHAR	2	0	Number of application

Data Browser: Table TMCEXACT Select Entries   1

⌗ ⌗ ⌗ ⌗ ⌗ ⌗ ⌗ ⌗

| Table: | TMCEXACT | |
| Displayed Fields: | 7 of   7 | Fixed Columns: | 2 | List Width | 0250 |

	CLIENT	ESTRUC	ISOURCE	ISGEN	UPDACT	ADDHEADER	MCAPP
☐	800	MC11VA0HDR	2LIS_11_VAHDR	X	X		11
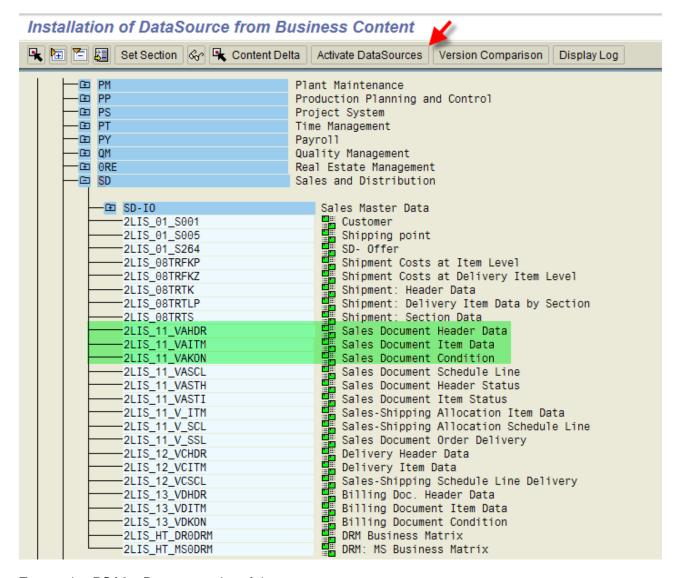
Dataflow: Overview
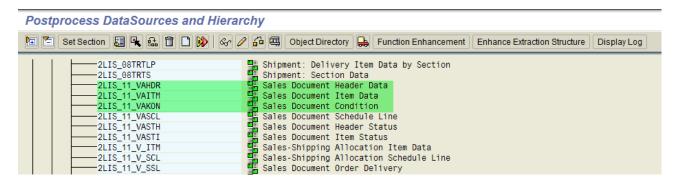
Activation of datasource

Transaction **RSA5**
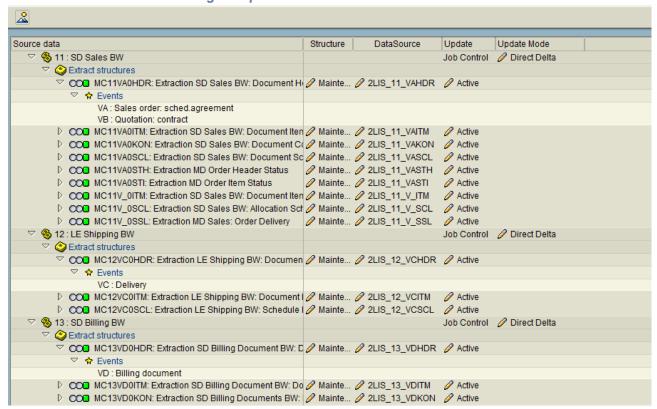
Transaction **RSA6** : Post processing of datasource

The LO Cockpit

In transaction LBWE we will be able to see all the datasource for LO application.

Going deeper to know the logic of extractor

<u>**Function Modules**</u>

Event VA (Order Processing)
R/3 Core: MCV_STATISTICS_ORDER
Tables : VBAK, VBAP, VBEP, VBUK, VBUP, VBKD

Event VC (Delivery)
R/3 Core: MCV_STATISTICS_DELIVERY
Tables : LIKP, LIPS, VBUK, VBUP

Event VD (Billing)
R/3 Core: MCV_STATISTICS_INVOICE
Tables : VBRK, VBRP, VBUK, VBUP

<u>**Extractor function module**</u>

Naming convention:
MCEX_UPDATE_nn (nn = application number), sometimes there is a second extractor
MCEX_UPDATE_nn_1

In case of the **V3 update modes** you can see the function module and its interface data in the transaction SM13.

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In case of **Delta queue** you may see it in the transaction LBWQ.

In case of **Direct Delta** the data has been written directly to the BW delta queue (transaction RSA7).

If it has not been done by the call interface, the extractor will make a decision between the setup and the online case (different targets: setup tables or BW delta queue).

Note: We will see in detail about the update modes in our next part.

Extractor API function module

Only one such module for all applications: MCEX_BW_LO_API

Will be called upon BW request of a full upload from Service API
Will read the data stored in the setup tables; SAPI will control the transmission to BW (e.g.IDOC/ALE)

Related OSS Notes

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