

# Learn ABAP in 1 Day

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# Chapter 1: Introduction to ABAP: Datatypes, Operators & Editor - Tutorial

ABAP stands for - Advanced Business Application Programming. It is a programming language for developing applications for the SAP R/3 system.

The latest version of ABAP is called ABAP Objects and supports object-oriented programming. SAP will run applications written using ABAP/4, the earlier ABAP version, as well as applications using ABAP Objects.

Without further adieu , lets dive into ABAP.

Note, this tutorial will not go into extensive details on ABAP language constructs (which become very boring to read ) but quickly introduce key concepts to get you started so you can focus your attention on more important topics.

## Data Types

Syntax to declare a variable in ABAP -

```
DATA Variable_Name Type Variable_Type
```

Example:



```
DATA employee_number Type I.
```

The following is a list of Data Types supported by ABAP

Data Type	Initial field length	Valid field length	Initial value	Meaning
<b>Numeric types</b>				
I	4	4	0	Integer (whole number)
F	8	8	0	Floating point number
P	8	1 - 16	0	Packed number
<b>Character types</b>				
C	1	1 - 65535	'...'	Text field(alphanumeric characters)
D	8	8	'00000000'	Date field(Format: YYYYMMDD)
N	1	1 - 65535	'0 ... 0'	Numeric text field(numeric characters)
T	6	6	'000000'	Time field(format: HHMMSS)
<b>Hexadecimal type</b>				
X	1	1 - 65535	X'0 ... 0'	Hexadecimal field

## Processing Data - Assigning Values

```
a=16.  
  
move 16 to a.  
  
write a to b.
```

## - Arithmetic Operations

```
compute a = a*100.
```

# Control Statements

Following control statements can be used - - If ... EndIf Loop

```
if [not] exp [ and / or [not] exp ].
```

```
.....  
[elseif exp.  
.....]  
[else.  
.....]  
Endif.
```

## - Case statement

```
Case variable.  
when value1.  
.....  
when value2.  
.....  
[ when others.  
.....]  
Endcase.  
Do.
```

## -While loop

```
While <logical expression>.  
.....  
.....  
Endwhile.
```

## - Do loop

```
Do <n> times.  
.....  
.....  
Enddo.
```

# Logical Operator

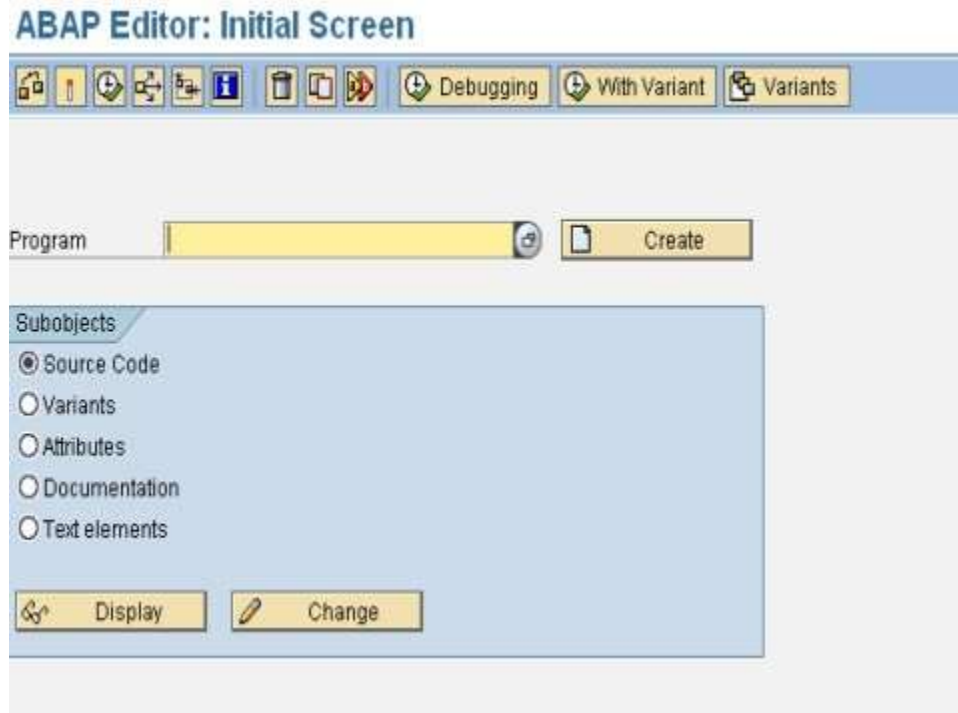
A list of logical operators

- GE or >=

- GT or > LE
- or <= LT
- or < EQ or
- = NE or <>
- 

## ABAP/4 Editor

Finally , here is where you will spent most of your time as a developer creating / modifying programs. Transaction **SE38**



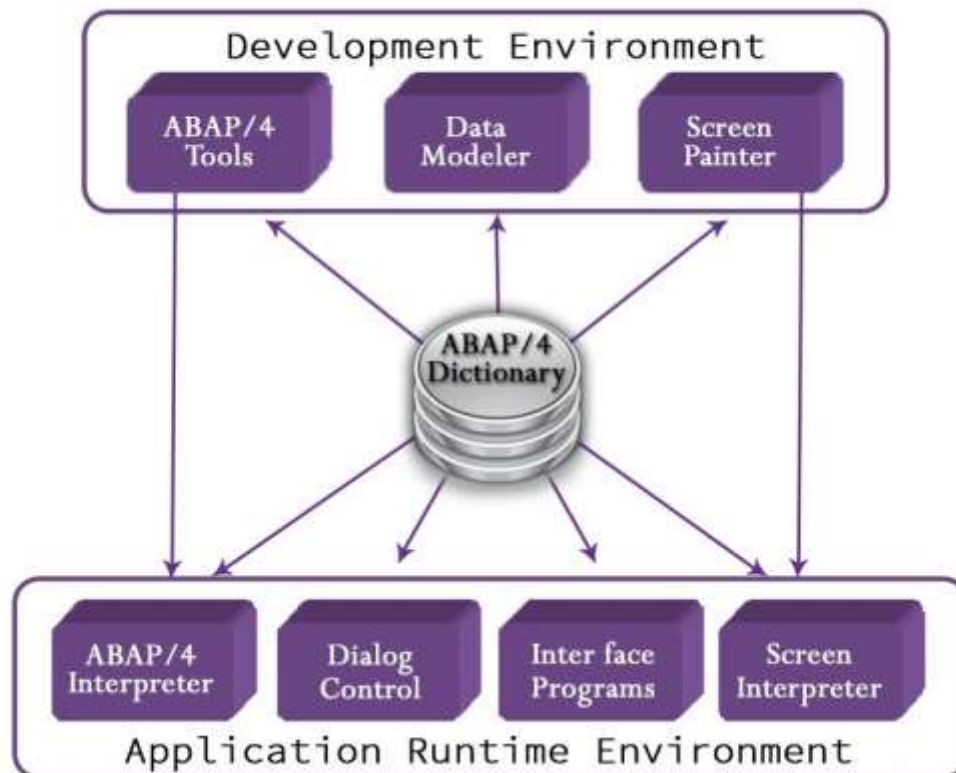
# Chapter 2: ABAP Data Dictionary Tutorial SE11: Table, Lock Object, View & Structure

## What is Data Dictionary?

Data Dictionary is a central source of information for the data in a information management system. Its main function is to support the creation and management of data definitions (or "metadata").

## INTEGRATION INTO ABAP/4 WORKBENCH

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# ABAP Dictionary 3 levels

Objects in the ABAP Dictionary resided on three levels that support their re-usability. These levels are:

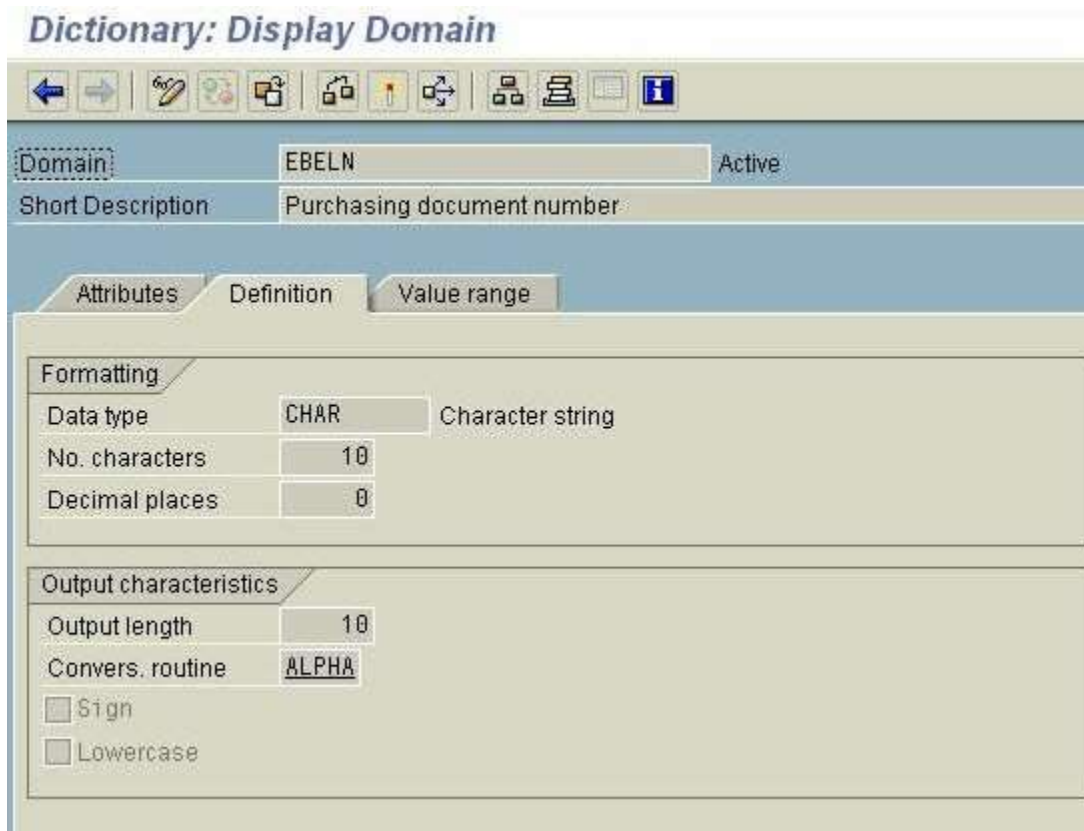
1. Tables and structures
2. Data elements
3. Domains

Lets look into them in detail -

## Domains

- Describes the technical characteristics of a table field
- Specifies a value range which describes allowed data values for the fields
- Fields referring to the same domain (via the data elements assigned to them) are changed when a change is made to the domain
- Ensures consistency

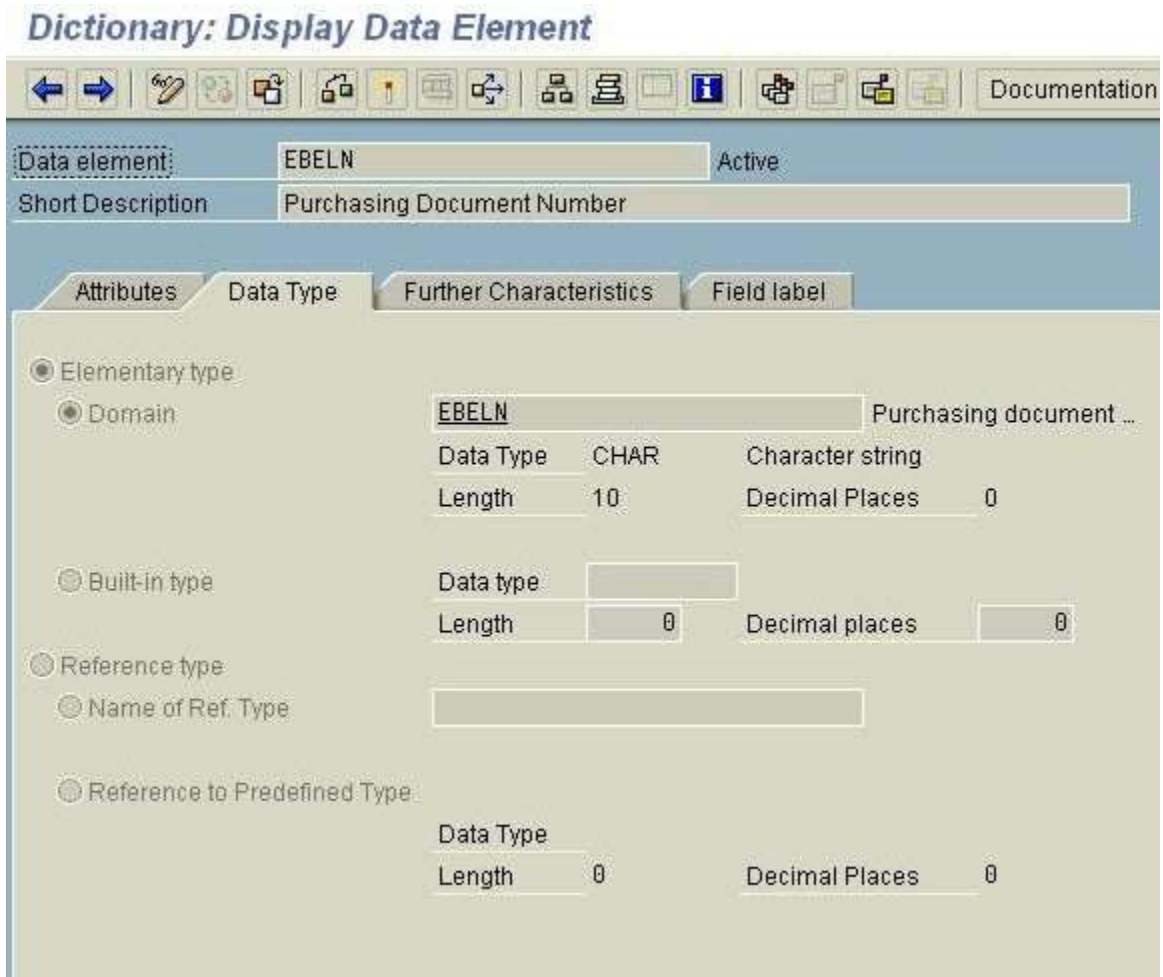
Ex. Purchasing document number (EBELN)



## Data Elements

- Describes the role played by a field in a technical context Fields of
- same semantic meaning can refer to the same data element
- Contains the field information

Ex. Purchasing document number (EBELN)



## Tables

- Represent the Database Tables where data actually resides. Tables can
- be defined independently of the database in the ABAP Dictionary.
- The fields of the table are defined with their (database- independent) SAP ABAP data types and lengths.

**Dictionary: Display Table**

Transp. table: EKPO Active  
 Short Description: Purchasing Document Item

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

Field | Key | Initt... | Data element | Data T... | Length | Deci... | Short Description

Field	Key	Initt...	Data element	Data T...	Length	Deci...	Short Description
MANDI	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	MANDI	CLNT	3	0	Client
EBELN	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	EBELN	CHAR	10	0	Purchasing Document Number
EBELP	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	EBELP	NUMC	5	0	Item Number of Purchasing Document
INCLUDE	<input type="checkbox"/>	<input type="checkbox"/>	EKPODATA	STRU	0	0	Purchasing Document Item: Data Part
LOEKZ	<input type="checkbox"/>	<input type="checkbox"/>	ELOEK	CHAR	1	0	Deletion indicator in purchasing document
STATU	<input type="checkbox"/>	<input type="checkbox"/>	ASTAT	CHAR	1	0	RFQ status
AEDAT	<input type="checkbox"/>	<input type="checkbox"/>	PAEDT	DATS	8	0	Purchasing document item change date
TXZ01	<input type="checkbox"/>	<input type="checkbox"/>	TXZ01	CHAR	40	0	Short text
MATNR	<input type="checkbox"/>	<input type="checkbox"/>	MATNR	CHAR	18	0	Material Number
EMATN	<input type="checkbox"/>	<input type="checkbox"/>	EMATNR	CHAR	18	0	Material number
BUKRS	<input type="checkbox"/>	<input type="checkbox"/>	BUKRS	CHAR	4	0	Company Code
WERKS	<input type="checkbox"/>	<input type="checkbox"/>	EWERK	CHAR	4	0	Plant
LGORT	<input type="checkbox"/>	<input type="checkbox"/>	LGORT_D	CHAR	4	0	Storage Location
BEDNR	<input type="checkbox"/>	<input type="checkbox"/>	BEDNR	CHAR	10	0	Requirement Tracking Number
MATKL	<input type="checkbox"/>	<input type="checkbox"/>	MATKL	CHAR	9	0	Material Group
INFNR	<input type="checkbox"/>	<input type="checkbox"/>	INFNR	CHAR	10	0	Number of purchasing info record
IDNLF	<input type="checkbox"/>	<input type="checkbox"/>	IDNLF	CHAR	35	0	Material Number used by Vendor
KTMNG	<input type="checkbox"/>	<input type="checkbox"/>	KTMNG	QUAN	13	3	Target quantity
MENGE	<input type="checkbox"/>	<input type="checkbox"/>	BSTMG	QUAN	13	3	Purchase order quantity

## Structures

- Are record declarations that do NOT correspond to a Database Table.
- Just like user-defined data type.
- Defined like a table and can then be addressed from ABAP programs.
- Structures contain data only during the runtime of a program.



**Dictionary: Display Structure**

Structure: BEKPO Active  
 Short Description: Transfer Structure Items for Purchasing Documents

Attributes Components Entry help/check Currency/quantity fields

Built-in type 1 / 256

Component	RT...	Component type	Data Type	Length	Deci...	Short Description
<a href="#">INCLUDE</a>	<input type="checkbox"/>	EKPO	NUM	0	0	Purchasing Document Item
<a href="#">MANDI</a>	<input type="checkbox"/>	MANDI	CLNT	3	0	Client
<a href="#">EBELN</a>	<input type="checkbox"/>	EBELN	CHAR	10	0	Purchasing Document Number
<a href="#">EBELP</a>	<input type="checkbox"/>	EBELP	NUMC	5	0	Item Number of Purchasing Document
<a href="#">INCLUDE</a>	<input type="checkbox"/>	EKPODATA	NUM	0	0	Purchasing Document Item: Data Part
<a href="#">LOEKZ</a>	<input type="checkbox"/>	ELOEK	CHAR	1	0	Deletion indicator in purchasing document
<a href="#">STATU</a>	<input type="checkbox"/>	ASTAT	CHAR	1	0	RFQ status
<a href="#">AEDAT</a>	<input type="checkbox"/>	PAEDT	DATS	8	0	Purchasing document item change date
<a href="#">TXZ01</a>	<input type="checkbox"/>	TXZ01	CHAR	40	0	Short text
<a href="#">MATNR</a>	<input type="checkbox"/>	MATNR	CHAR	18	0	Material Number
<a href="#">EMATN</a>	<input type="checkbox"/>	EMATNR	CHAR	18	0	Material number
<a href="#">BUKRS</a>	<input type="checkbox"/>	BUKRS	CHAR	4	0	Company Code
<a href="#">WERKS</a>	<input type="checkbox"/>	EWERK	CHAR	4	0	Plant
<a href="#">LGORT</a>	<input type="checkbox"/>	LGORT_D	CHAR	4	0	Storage Location
<a href="#">BEDNR</a>	<input type="checkbox"/>	BEDNR	CHAR	10	0	Requirement Tracking Number
<a href="#">MATKL</a>	<input type="checkbox"/>	MATKL	CHAR	9	0	Material Group
<a href="#">INFNR</a>	<input type="checkbox"/>	INFNR	CHAR	10	0	Number of purchasing info record
<a href="#">IDNLF</a>	<input type="checkbox"/>	IDNLF	CHAR	35	0	Material Number used by Vendor

## Aggregated Objects of ABAP Dictionary

Aggregated means consisting of several components. In the ABAP Dictionary, aggregated objects are objects which come from several different transparent tables.

1. Views
2. Search Help
3. Lock Objects

Lets look into them in detail

# Views

- Views in SAP \_ ABAP are used to summarize data which is distributed among several tables
- The data of a view is not actually physically stored. The data of a view is instead derived from one or more other tables
- It is tailored to the needs of a specific application

**Dictionary: Display View**

Database view: EKBI Active

Short Description: Join via EKKO / EKPO / EKBE for MR11

Attributes | Table/Join Conditions | View Flds | Selection Conditions | Maint. Status

Tables

- EKKO
- EKPO
- EKBE

Join conditions

Table	Field name	=	Table	Field name
EKKO	MANDI	=	EKPO	MANDI
EKKO	MANDI	=	EKBE	MANDI
EKKO	EBELN	=	EKPO	EBELN
EKKO	EBELN	=	EKBE	EBELN
EKPO	EBELP	=	EKBE	EBELP

Relationships

# Search Help

- A Search help is a tool to help you search for data records in the system
- An efficient and user-friendly search assists users where the key of a record is unknown

**Dictionary: Display Search Help**

Collective srch hlp: S\_MAT1 Active

Short description: Find Material Number

Attributes | Definition | Included search helps

Srch. help exit

Parameter

Search help parameter	Imp	Ex...	Data element	Default value
MATNR	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	MATNR	
WERKS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	WERKS_D	
MATNR_B	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	MATNR	
PLNTY	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	CC_PLNTY	
PLNNR	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	CC_PLNNR	
PLNAL	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	CC_PLNAL	
MATNR_HTN	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	EMATN	
VKORG	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	VKORG	
VTWEG	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	VTWEG	

# Lock Objects

- Simultaneous accessing of the same data record by two users in the SAP system is synchronized by a lock mechanism.
- Locks are set and released by calling certain function modules.

These function modules are generated automatically from the definition of so-called lock objects in the ABAP/4 Dictionary

**Function modules** : Enqueue\_<obj name> - to lock the table dequeue\_<obj name> - to release the lock

**Dictionary: Display Lock Object**

Lock object: EWB2\_EKPO Active

Short Description: Lock Object: Item In Purchasing Document

Attributes Tables Lock parameter

W	Lock parameter	Table	Field
<input checked="" type="checkbox"/>	MANDT	EKPO	MANDT
<input checked="" type="checkbox"/>	EBELN	EKPO	EBELN
<input checked="" type="checkbox"/>	EBELP	EKPO	EBELP

### Important Transactions

- SE11 : Data Dictionary Initial Screen (SE12 Display only) SE13 :
- ABAP Dictionary : Technical Settings
- SE14 : Database Utility
- SE15 : Repository Information System SE16 :
- Data Browser
- SE17 : General table Display SE55 :
- Table View Maintenance SM30 :
- Table Maintenance

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