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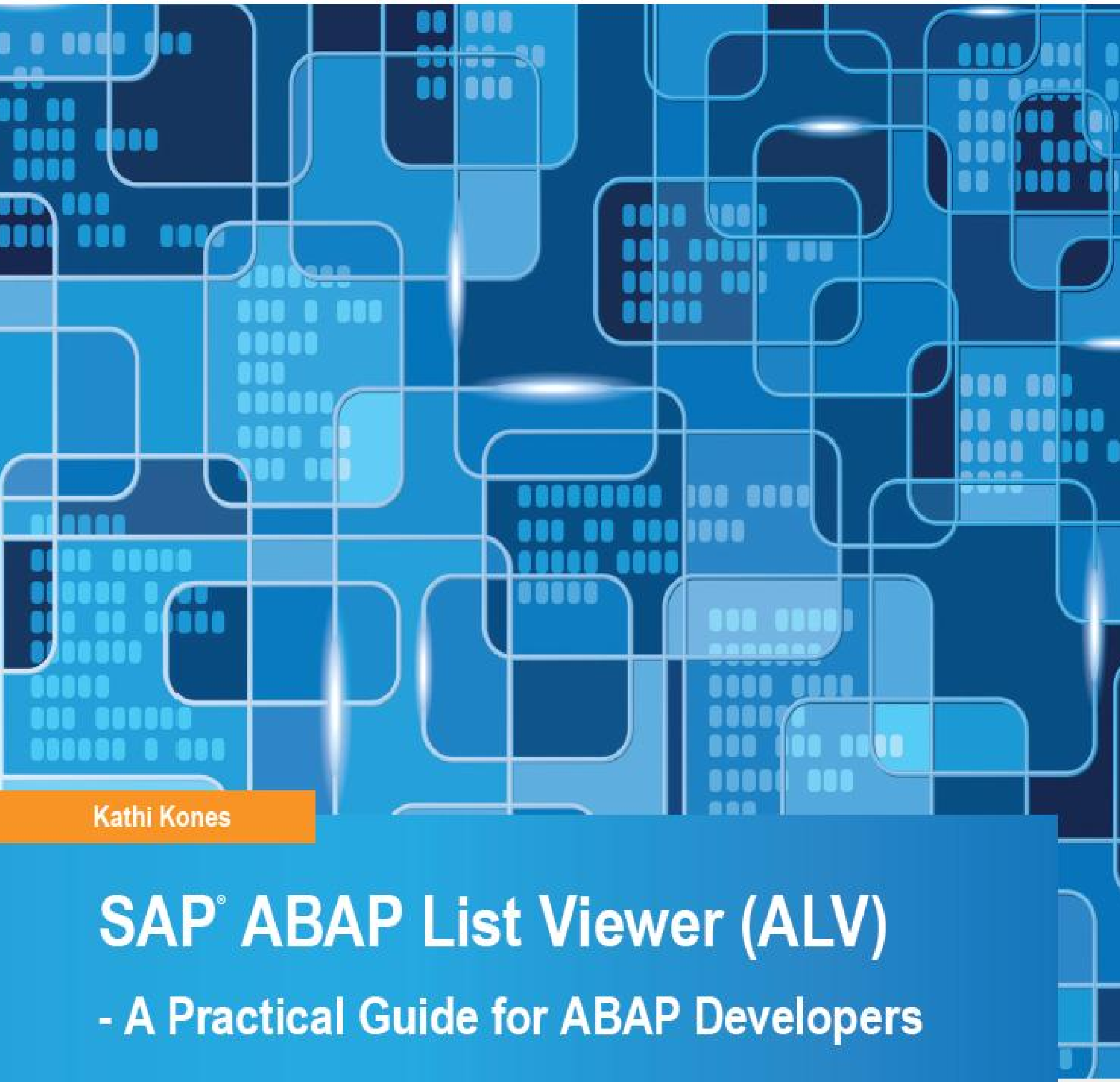

Kathi Kones

SAP® ABAP List Viewer (ALV) - A Practical Guide for ABAP Developers

- Learn how to write a basic SAP ALV program
- Get tips on adding sorting and grouping features
- Walk through the control framework and function modules
- Dive into how to add editable fields, events, and layout variants

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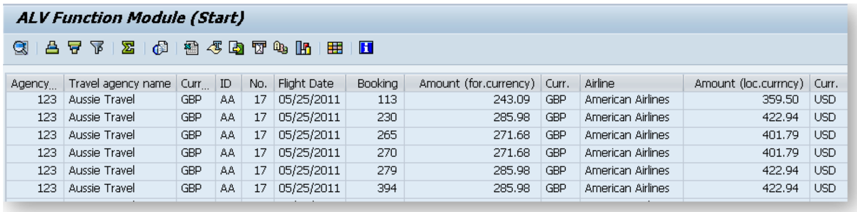
2 Writing an ALV program using function modules

In this chapter, you'll learn how to write a report using an ALV function module technique, specifically, the REUSE_ALV_GRID_DISPLAY function module. For the training scenario, you'll retrieve data from the SAP Flight Application tables in order to evaluate the amount of income that various travel agencies have generated booking airline flights. The retrieved data will include two currency amounts and three currency keys.

2.1 Create the ABAP program

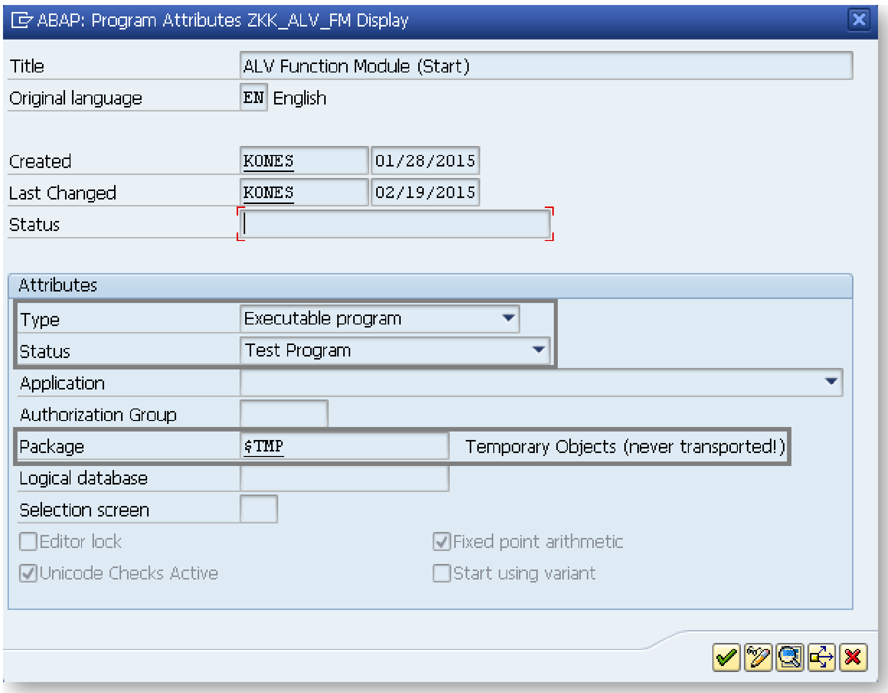
A preview of the ALV output from this initial program is shown in Figure 2.1.


ALV Function Module (Start)

Agency...	Travel agency name	Curr...	ID	No.	Flight Date	Booking	Amount (for.currency)	Curr.	Airline	Amount (loc.currncy)	Curr.
123	Aussie Travel	GBP	AA	17	05/25/2011	113	243.09	GBP	American Airlines	359.50	USD
123	Aussie Travel	GBP	AA	17	05/25/2011	230	285.98	GBP	American Airlines	422.94	USD
123	Aussie Travel	GBP	AA	17	05/25/2011	265	271.68	GBP	American Airlines	401.79	USD
123	Aussie Travel	GBP	AA	17	05/25/2011	270	271.68	GBP	American Airlines	401.79	USD
123	Aussie Travel	GBP	AA	17	05/25/2011	279	285.98	GBP	American Airlines	422.94	USD
123	Aussie Travel	GBP	AA	17	05/25/2011	394	285.98	GBP	American Airlines	422.94	USD

Figure 2.1: Preview (function module – FM)

Using transaction code se38 (or se80, if you prefer), type a name for the new program, then click on the CREATE button. (I have used the name ZKK_ALV_FM for this initial program.) Complete the TYPE and STATUS fields (Figure 2.2), then click on the SAVE button. When prompted for the Package, click on the LOCAL OBJECT button. This fills the Package field with $TMP and positions your cursor in the new program.



ABAP: Program Attributes ZKK_ALV_FM Display

Title	ALV Function Module (Start)	
Original language	EN	English
Created	KONES	01/28/2015
Last Changed	KONES	02/19/2015
Status		

Attributes

Type	Executable program	
Status	Test Program	
Application		
Authorization Group		
Package	$TMP	Temporary Objects (never transported!)
Logical database		
Selection screen		

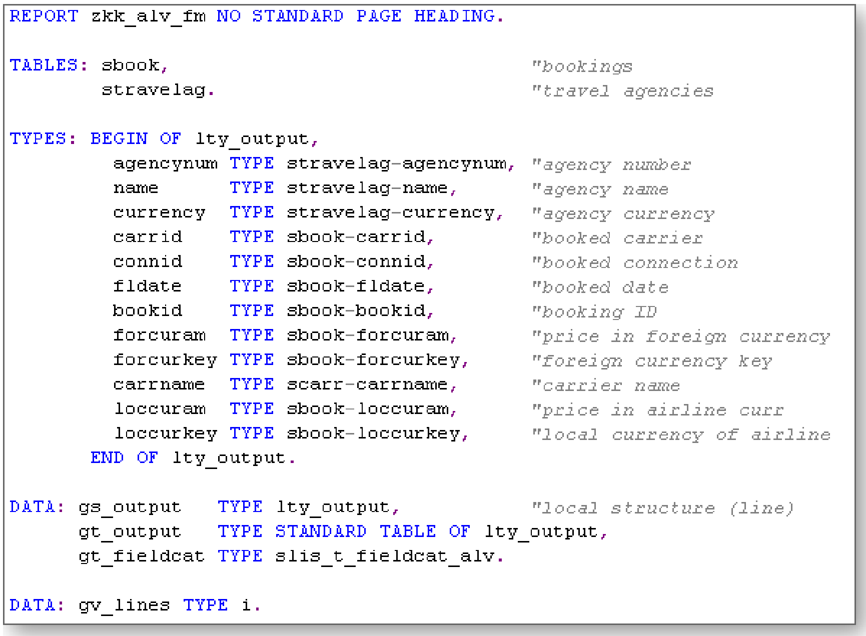
☐ Editor lock ✓ Fixed point arithmetic
✓ Unicode Checks Active ☐ Start using variant

Figure 2.2: Program attributes (FM)

2.2 Data declarations

As shown in Figure 2.3, begin the data declarations section of the program by listing the database tables used in the SELECT-OPTIONS statement: SBOOK and STRAVELAG (Figure 2.4). This will prevent a syntax error.

A local *TYPE* called LTY_OUTPUT lists the fields to be displayed in this ALV. A single-line structure and matching internal tables (GS_OUTPUT and GT_OUTPUT) are declared next, based on the local TYPE LTY_OUTPUT.



```
REPORT zkk_alv_fm NO STANDARD PAGE HEADING.

TABLES: sbook,                                      "bookings
        stravelag.                                  "travel agencies

TYPES: BEGIN OF lty_output,
         agencynum TYPE stravelag-agencynum,  "agency number
         name      TYPE stravelag-name,       "agency name
         currency  TYPE stravelag-currency,   "agency currency
         carrid    TYPE sbook-carrid,         "booked carrier
         connid    TYPE sbook-connid,         "booked connection
         fldate    TYPE sbook-fldate,         "booked date
         bookid    TYPE sbook-bookid,         "booking ID
         forcuram  TYPE sbook-forcuram,       "price in foreign currency
         forcurkey TYPE sbook-forcurkey,      "foreign currency key
         carrname  TYPE scarr-carrname,       "carrier name
         loccuram  TYPE sbook-loccuram,       "price in airline curr
         loccurkey TYPE sbook-loccurkey,      "local currency of airline
       END OF lty_output.

DATA: gs_output   TYPE lty_output,            "local structure (line)
      gt_output   TYPE STANDARD TABLE OF lty_output,
      gt_fieldcat TYPE slis_t_fieldcat_alv.

DATA: gv_lines TYPE i.
```

Figure 2.3: Data declarations (FM)

Local TYPE vs. data dictionary structure

Instead of defining your output structure as a local TYPE in your program, you can define it as a structure in the data dictionary. The technique you use may depend upon your employer's or client's standards and practices, the number of changes you expect to make over time to the output structure, and the ease of making those changes.

Currency keys

Some types of data require a “partner” field for clarity—for instance, currency amounts require currency keys, count and weight amounts require units of measure, and texts that can be stored in multiple languages require language keys. To facilitate troubleshooting and flexibility, we will provide all of the applicable currency keys in the ALV interface. In Chapter 6.1, you will see how you can hide fields on initial display of the ALV.

Referring again to Figure 2.3, you’ll see a global table called GT_FIELDCAT. The *field catalog table* is used to pass information (such as output length or data type) about the fields included in the output structure.

Field catalog table (SLIS_T_FIELDCAT_ALV)

The field catalog table contains information about each of the fields (or columns) in the ALV output. If your structure is not already defined in the data dictionary, you will need to populate this information into the field catalog table yourself. You will see later in this chapter, though, that you can refer to metadata in the data dictionary when populating your field catalog table.

The final data item declared in this simple program is a global variable GV_LINES that will be used to verify that records were found for display using the ALV interface.

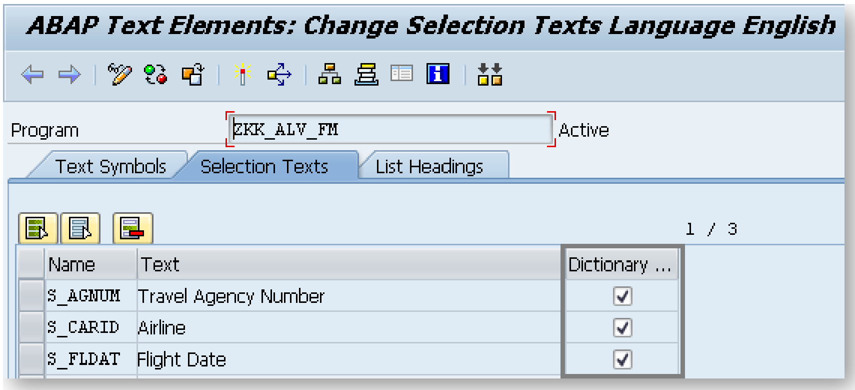
2.3 Select-Options

After the data declarations, type three SELECT-OPTIONS as shown in Figure 2.4. Save, check, and activate your program.

```
SELECT-OPTIONS: s_agnum FOR stravelag-agencynum DEFAULT '123',
                s_carid FOR sbook-carrid,
                s_fldat FOR sbook-fldate.
```

Figure 2.4: Selection-options declaration (FM)

Change the SELECT-OPTIONS labels that will be displayed to the user from question marks to the texts stored in the data dictionary by using the menu path GOTO • TEXT ELEMENTS • SELECTION TEXTS. Check the checkboxes (Figure 2.5). Activate the selection texts, then go back to your program source code.

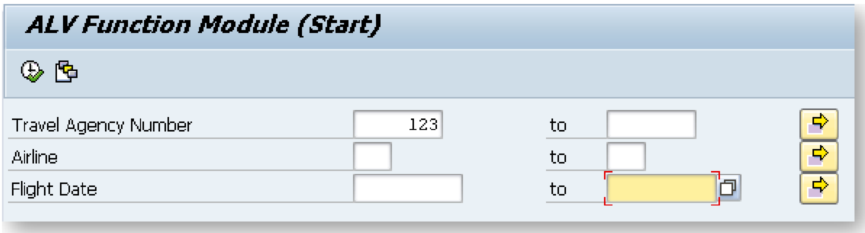

ABAP Text Elements: Change Selection Texts Language English

Program ZKK_ALV_FM Active

Name	Text	Dictionary ...
S_AGNUM	Travel Agency Number	✓
S_CARID	Airline	✓
S_FLDAT	Flight Date	✓

Figure 2.5: Copying selection texts from the data dictionary (FM)

The selection screen should look like Figure 2.6 when done.


ALV Function Module (Start)

Travel Agency Number	123	to	
Airline		to	
Flight Date		to	

Figure 2.6: Selection screen (FM)

2.4 Selection of data for ALV output

We will type placeholders for the INITIALIZATION and the AT SELECTION-SCREEN events, but will leave them empty for this initial program (Figure 2.7).

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- *Italicized page numbers* for function module.
- Normal page numbers for general references.

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