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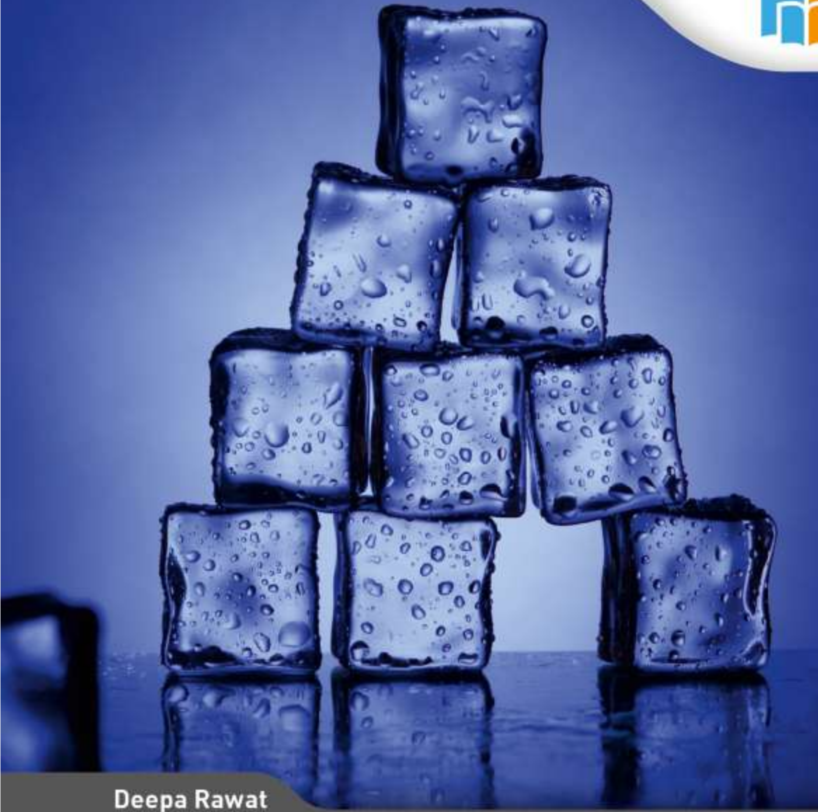

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# Practical Guide to Advanced DSOs in SAP®

- Fundamentals of Advanced Data Store Objects
- Modeling with SAP HANA Studio
- How to create an SAP HANA-optimized InfoProvider
- Examples and screenshots based on real-world scenarios

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# 2 New objects in SAP BW and SAP HANA

**Creating a data warehouse using SAP BW takes time because of InfoObject-based modeling technologies. In order to extract data into the older version of SAP BW (version 3.x or before), every source field that needed extraction into SAP BW had to be converted into an InfoObject in SAP BW before a simple report could be created. With SAP BW 7.4 and SAP BW 7.5 on SAP HANA, SAP has introduced field-based modeling and has brought in robust virtual objects. You can now implement reportable objects that do not need InfoObjects. This has changed the speed with which a data warehouse can be implemented.**

Some of the new features that have been introduced with SAP BW 7.5 on SAP HANA are:

- Open ODS views
- Composite providers
- Advanced DSOs

There are many more new features, but these are the only objects discussed in this book.

## 2.1 Open ODS views

In SAP BW, modelers create reports that are meant to return results in a short amount of time. To do this, extensive modeling efforts are required to produce the reports. These modeling efforts require creating complex data models in SAP BW, which are time-consuming. Regular SAP BW modeling requires creating InfoObjects of type characteristics and key figures that are in turn used in InfoProviders and queries to return results.

Open ODS view was introduced when SAP released SAP BW 7.4 SP5 on SAP HANA. An Open ODS view allows SAP to integrate external tables and views (on external databases) with SAP BW's transaction and master data by utilizing a view concept. As this interface is a view-based interface, it means that an Open ODS view allows external data to be integrated within SAP BW without data persistency. An Open ODS view can provide three types of semantics within SAP BW. It can enable the external table structures within SAP BW as facts, attributes, or texts. Open ODS views help deliver reports in a shorter amount of time. Unlike other InfoProviders in SAP BW (classic DSOs, InfoCubes, etc.), they do not require InfoObjects for their creation; instead, they use fields for defining the construct of the view. Hence, they are field-based structures. The fields usually adopt the structure of the source table's fields. The field's properties can indicate the following:

- Whether the field is a key figure or characteristic
- If the field is a key figure, the aggregation behavior of the key figure
- Authorization relevance of the field

### Open ODS view restriction

Open ODS view can be used to indicate if a field contains a key figure or a characteristic, but it cannot be used to define hierarchies. As an SAP BW system uses a BW-specific internal format to specify a hierarchy structure, it is not possible to use an Open ODS view to identify a hierarchy.

A field can be associated with either an InfoObject or another Open ODS view. If a field is associated with another InfoObject, it can inherit all the attributes and text for that InfoObject. Similarly, if a field is associated with another Open ODS view, it can utilize the data of that other Open ODS view to enrich itself.

Once the Open ODS view is created, queries can be created to enable reporting.

An Open ODS view can accept data from four different types of sources.

### 2.1.1 Sources for Open ODS views

- Datasources (BW)—A datasource on a table helps expose an external table in a database to SAP BW's Open ODS view. Datasources can be created via RSO2. If data needs to be extracted from a table, expose the table via a datasource. Some of the supported source system types are BW, SAP, ODP extraction technique, and DBCONNECT.
- Database table or view—Data in tables or views in any schema within SAP HANA can be viewed using this option.
- Advanced Data Store Object (aDSO)—Usually aDSOs can be exposed directly to SAP BW queries. The advantage of having an aDSO as a source to Open ODS views is to use a transaction datasource as master data or the other way around. All reporting takes place using the active table of the Advanced DSO.
- Transformation—A source table is usually interfaced directly to an Open ODS view, but in some situations, it might be required that some fields undergo some transformations before being exposed to the Open ODS view. In that case, it might be required that the source for an Open ODS view be a transformation attached to the datasource.

**Open ODS view availability**

Open ODS view is available only on SAP BW systems running on SAP HANA databases.

### 2.1.2 Transporting Open ODS views

Transports for Open ODS view uses SAP's TLOGO framework. The objects are transportable and the transportable object type is either FBPA or FBPD (SAP-delivered object). In order to transport the Open ODS view, all dependent objects should be available in the target system. If the Open ODS view is created on a source table, that source table and its datasource should reside in the target system. The Open ODS view does not hold the connection information. The view is connected to the source system and the RSLOGSYSMAP table in the target system usually holds the source-to-target-system mapping details so that the transport can correctly recognize the target system and the table to which the Open ODS view is connected.

### 2.1.3 Advantages and disadvantages of Open ODS views

#### Advantages

1. Open ODS view is a view on the source table structures, so it does not persist data
2. Instead of using InfoObjects, Open ODS view utilizes field-based constructs. This helps a developer to quickly implement queries and do a quicker proof of concept.
3. Open ODS view can connect a field's definition to either an InfoObject or another Open ODS view. This enables a field to utilize an existing BW definition to enrich queries.

#### Disadvantage

1. Open ODS view should be created on smaller-sized source tables. Query performance gets degraded if the source table size is big.

### 2.1.4 An example utilizing Open ODS views

The next example shows how to do a quick proof of concept for an Open ODS view. The example utilizes the source system to be a datasource (BW). Custom zzcus_reg table has been created in SAP. It stores CUSTOMER ID, CUSTOMER STATE, and CUSTOMER REGION. Create an Open ODS view on this table and expose it to create a query on the basic table without creating InfoObjects.

1. Display the zzcus_reg Table—In order to display the zzcus_reg table, use the SE16 transaction code (TCODE), as shown in Figure 2.1.

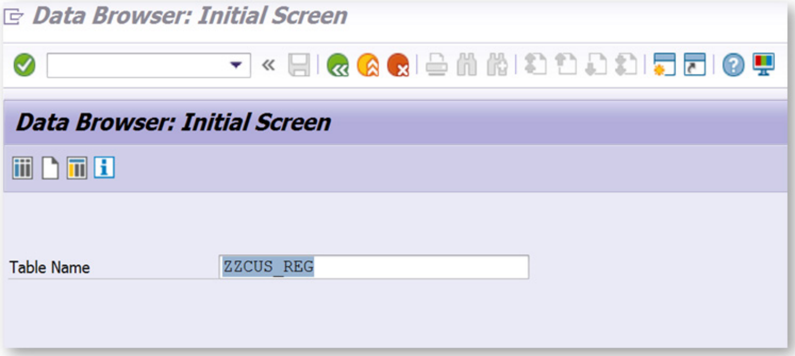
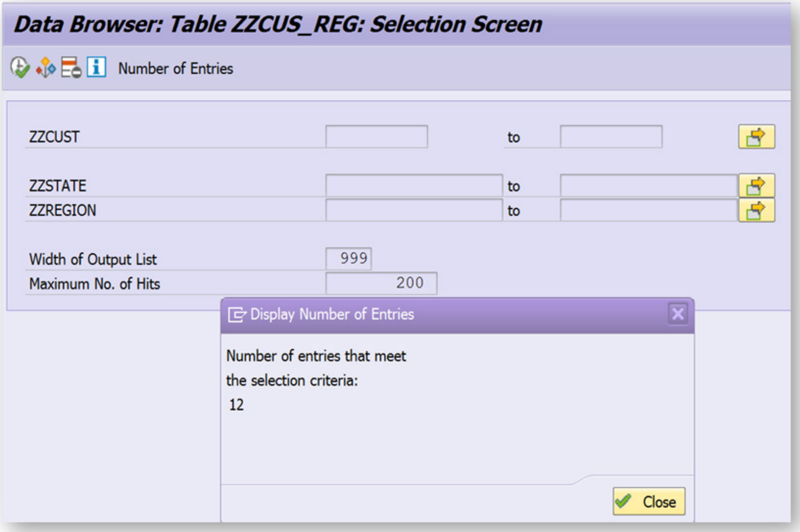


Table Name ZZCUS_REG

*Figure 2.1: Table name being displayed via SE16*

2. When the data browser screen displays, click the NUMBER OF ENTRIES button and check how many rows are available. In this example, there are 12 rows in the table as shown in Figure 2.2.


Data Browser: Table ZZCUS_REG: Selection Screen
Number of Entries
ZZCUST
to
ZZSTATE
to
ZZREGION
to
Display Number of Entries
Close

Width of Output List 999

Maximum No. of Hits 200

Number of entries that meet the selection criteria: 12

*Figure 2.2: Display number of entries in a table*

3. Execute the TCODE RSO2 and create a datasource on the table zzcus_reg. In this example, the datasource name is ZZCUS_REG_ATTR as shown in Figure 2.3.

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