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ABAP Annotations In CDS views

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Hello,Welcome to my blog.In this post i will explain you in Detail about ABAP annotations in CDS Views.

ABAP Annotations:

There is a set of SAP annotations, predefined by SAP. These comprise ABAP annotations evaluated by the ABAP runtime environment component annotations evaluated by other frameworks such as OData, UI, and Analytics.

Annotations are used to add metadata to CDS entities. They are evaluated by the framework in which a CDS entity is used. Annotations specify the properties and semantics of the entity and its behavior when it is accessed at runtime. This metadata can also be accessed by consumption tools using special APIs.

When an object defined in the CDS source code is activated, the metadata defined by the annotations is saved in internal database tables in ABAP Dictionary. These tables can then be accessed to evaluate the data. This is done for every annotation with the correct syntax regardless of name and value.

SAP annotations are evaluated by SAP frameworks in one of the following two ways, depending on the type:

- ABAP annotations are evaluated when the object defined in the DDL source code is activated or when the object is used in the ABAP runtime environment.
- Component annotations are evaluated by frameworks of other software components such as OData, UI, and Analytics.

Notes:

- Application annotations that are not evaluated by a framework are ignored.
- Annotations always begin with the character "**@**"

Enrich CDS data models with additional metadata

- Annotations begin with @
- Different ABAP specific information can be added
  - Name of the associated SQL/ABAP Dictionary view
  - Buffering
  - Client dependency

```
@AbapCatalog.sqlViewName: 'ZS4H410_DEMO'
@AbapCatalog.buffering.status: '#ACTIVE'
@AbapCatalog.buffering.type: '#SINGLE'
@ClientDependent:'true' //default
define view zs4h_cds_sf32 as
select from sbook
 {
     carrid as airline,
     connid as flightnumber,
     fldate as flightdate,
     bookid as id,
     customid as customer,
 }
```

ABAP Annotations Example

In every view definition, the compulsory annotation **@AbapCatalog.sqlViewName** must be specified. This annotation specifies the name of the corresponding view in the ABAP Dictionary. CDS entities are integrated into the ABAP Dictionary and ABAP language using the same infrastructure that exists for classical Dictionary views.

Annotations allow you to specify ABAP-specific additional information, such as how records of the view should be buffered by the ABAP table buffer, or whether the view is client-dependent or not.

Note:

By default, CDS views are considered client-dependent.you do not have to include client fields explicitly in the field list or in the join conditions.

In the above example, ABAP Annotations, the SAP buffering behavior is specified using the **@AbapCatalog.buffering** annotation. Here, a single record buffering is enabled. (A prerequisite is that the underlying data source allows buffering.)

ABAP Catalog Annotations

The following ABAP catalog annotations are available:

@AbapCatalog.sqlViewName: '<SQL VIEW NAME>'

Description: Name of the CDS database view in the ABAP Dictionary.

Possible values: Character string with a maximum of 16 characters.

The SQL view name used for the annotation **@AbapCatalog.sqlViewName** is a character string with a maximum of 16 characters consisting of letters numbers, and underscores and that starts with a namespace prefix.

Note:
Each definition of a CDS view must contain the ABAP annotation
@AbapCatalog.sqlViewName, which defines the name of the CDS database view in ABAP Dictionary.

@AbapCatalog.compiler.compareFilter: '<VALUE>'

Description: Defines the evaluation of filter conditions in path expressions of the CDS view.

Possible values: true or false

With the annotation **@AbapCatalog.compiler.compareFilter**, the evaluation of filter conditions in path expressions of the CDS view can be defined. When set to true, the filter conditions are compared and, if they match, the associated join expression is evaluated only once. When set to false, a separate join expression is created and evaluated for each filter condition.

Access Control Annotations

The following access control annotations are available:

@AccessControl.authorizationCheck: '<VALUE>'

Description: Defines the implicit access control when Open SQL is used to access the CDS view.

Possible values: #CHECK, #NOT_REQUIRED and #NOT_ALLOWED

The annotation **@AccessControl.authorizationCheck** allows you to define how the access control is handled when Open SQL is used to access the CDS view as follows.

CHECK: If Open SQL is used to access the view, access control is performed implicitly if a CDS role is assigned to the view. If there is no role for the view, a syntax check warning occurs.

NOT_REQUIRED: Like #CHECK, but there is no syntax check warning.

NOT_ALLOWED: No access control is performed. This produces a syntax check warning in the DCL source code of a role for the view.

ABAP CDS enables access control based on a Data Control Language (DCL). Access control in ABAP CDS further restricts the data returned from a CDS entity in ABAP CDS. CDS access control is based on the following:

CDS roles defined using the DCL statement DEFINE ROLE. Currently, a CDS role is mapped to each user implicitly. This is why they are also known as mapping roles.

Access conditions defined in a CDS role CDS entities. Access conditions can be the following:

- Literal conditions that compare elements of a CDS entity with literal values.
- PFCG conditions that associate elements of a CDS entity with authorizations in the SAP authorization concept.

If a CDS role is defined for a CDS entity, the access conditions are evaluated implicitly each time an object is accessed using Open SQL or using a Service Adaptation Description Language (SADL) query (unless access control is disabled using the value #NOT_ALLOWED for the annotation **@AccessControl.authorizationCheck**). If access control is enabled, only
the data that meets the access conditions is read.

Note:
SADL (Service Adaptation Description Language) is an ABAP technology that enables the consumption of entity relationship-like ABAP data models in various scenarios with a common development experience based on a model-driven approach. Therefore, SADL enables fast read access to data for scenarios on mobile and desktop applications based on SAP HANA using query push-down.

EndUserText Annotations

The following EndUserText Annotation is available:

@EndUserText.label:'<String>'

Description: Translatable short text of the CDS view

Possible values: Character string with a maximum of 40 characters

The ABAP annotation **@EndUserText.label** was introduced to define translatable semantic texts for a CDS object. The value of an annotation like this is saved in special tables that have a language key and that are translatable. The value specified in the source code should consist of text in the original language of the CDS source code and is translated into the required languages.

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