

Step-by-Step SAP BI Security

SAP BI security is an integral part of any BI implementation. Integrating all the data coming from various source systems and providing the data access based on the user's role is one of the major concerns of all the BI Projects.

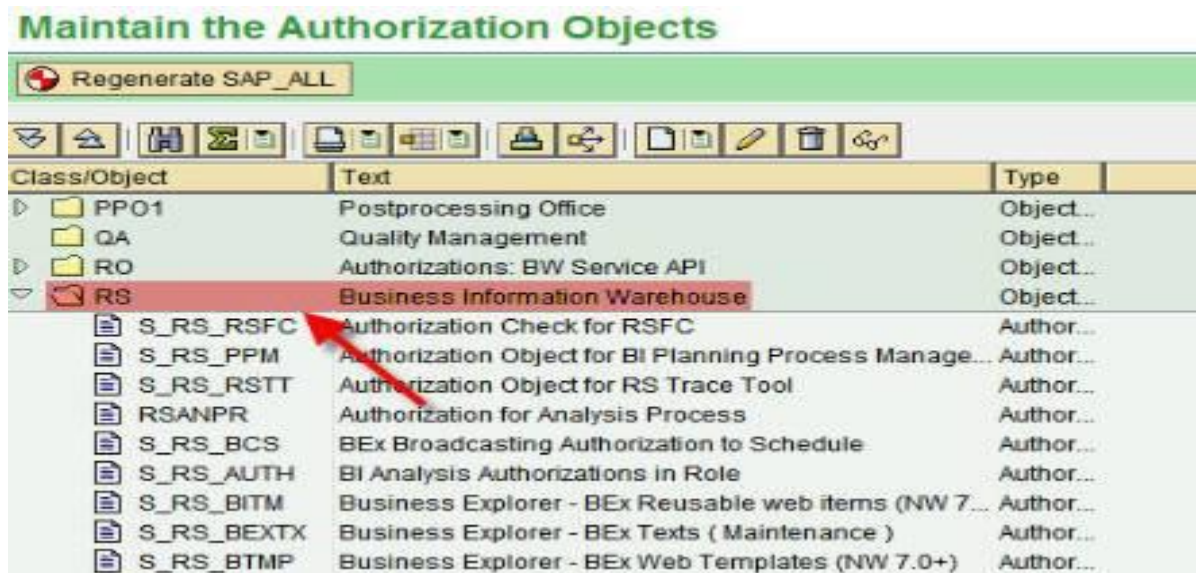
Security of SAP R/3-ECC systems are based on the activities while SAP BI security is focused on what data user can access. Security in BI is categorized by major 2 categories:

Administrative Users – The way we maintain security for administrative users is same as ECC security but we have additional authorization objects in system which are defined only for BI objects.

Reporting Users– We have separate tools(Analysis Authorization) to maintain security for reporting users.

What is Authorization Object?

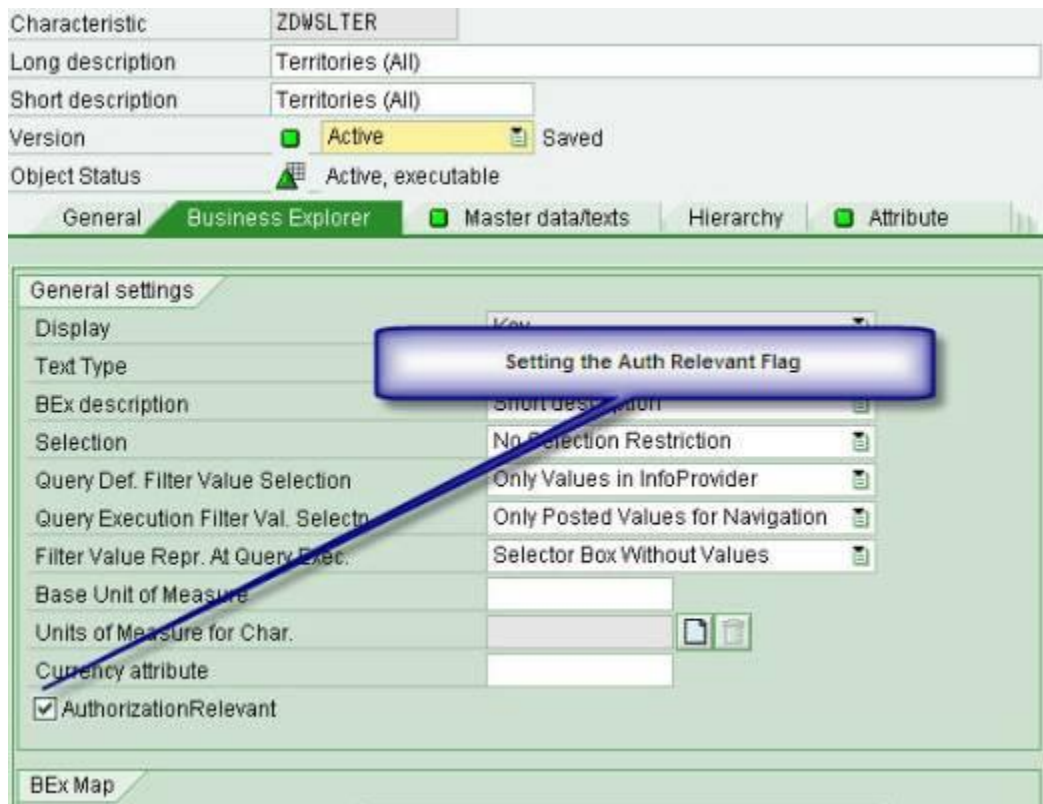
It allows to check whether a user is allowed to perform a certain action. Actions are defined on the fields, and each field in authorization object should pass the check. We can check all the Standard BI Authorization Objects using tcode **SU21** under the Business Warehouse folder:



With the SAP BI 7.0 we have new tool to maintain the reporting level security. We can access this new tool using tcode **RSECADMIN** which replaces the old RSSM tool of BW 3.x.

Below are the Step-by-Step instructions to create/maintain authorization objects for SAP BI Reporting: I am covering the scenario where each employee (Sales Team) is assigned with one territory number, and the data should be accessible to employee based on their territory only. For this scenario to work we have to set security restriction for the corresponding territory InfoObject (ZDWSLTER).

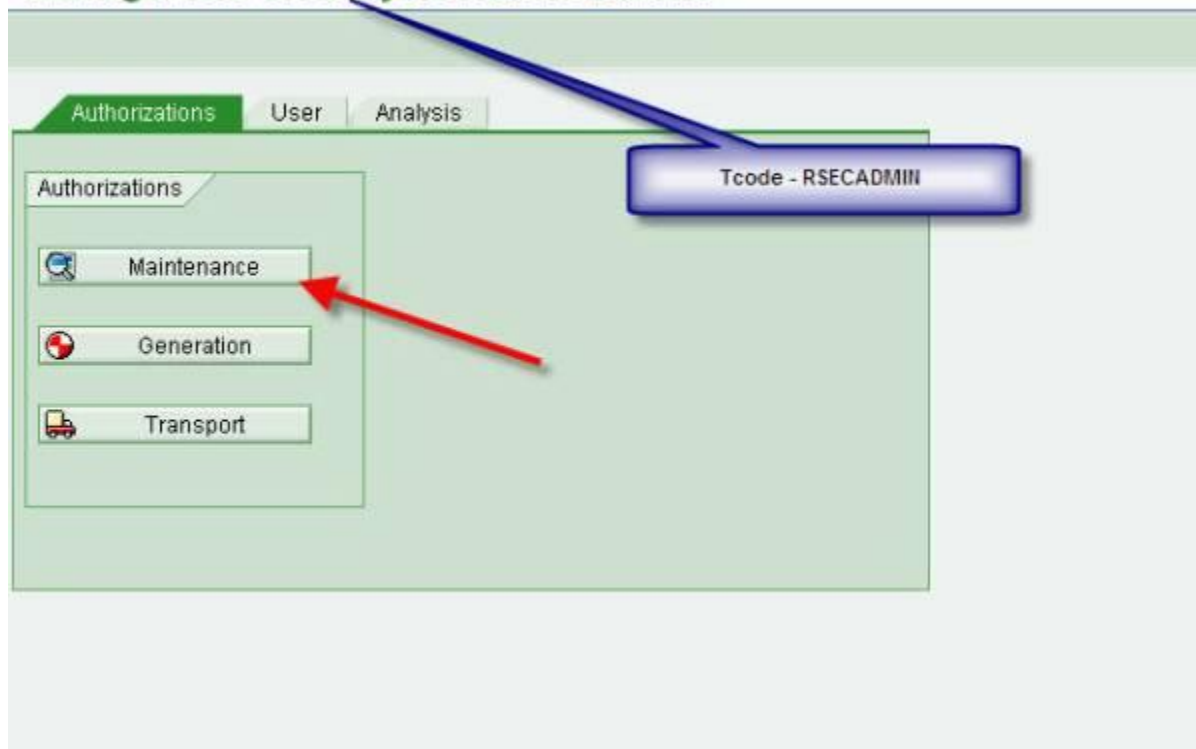
The first step before we create any Authorization Object is to set all the InfoObjects as authorization relevant for which we want to restrict data access.



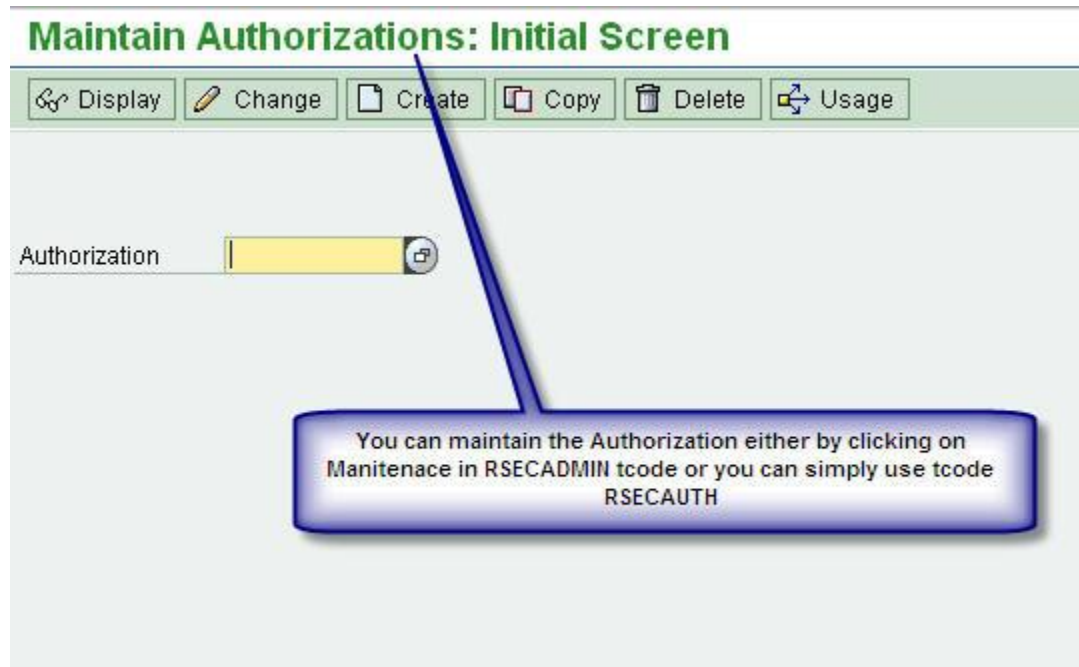
Authorization Objects on InfoObject's of type Characteristic:

For accessing the new Analysis Authorization tools we use tcode RSEADMIN -> Authorizations Tab -> Maintenance Button

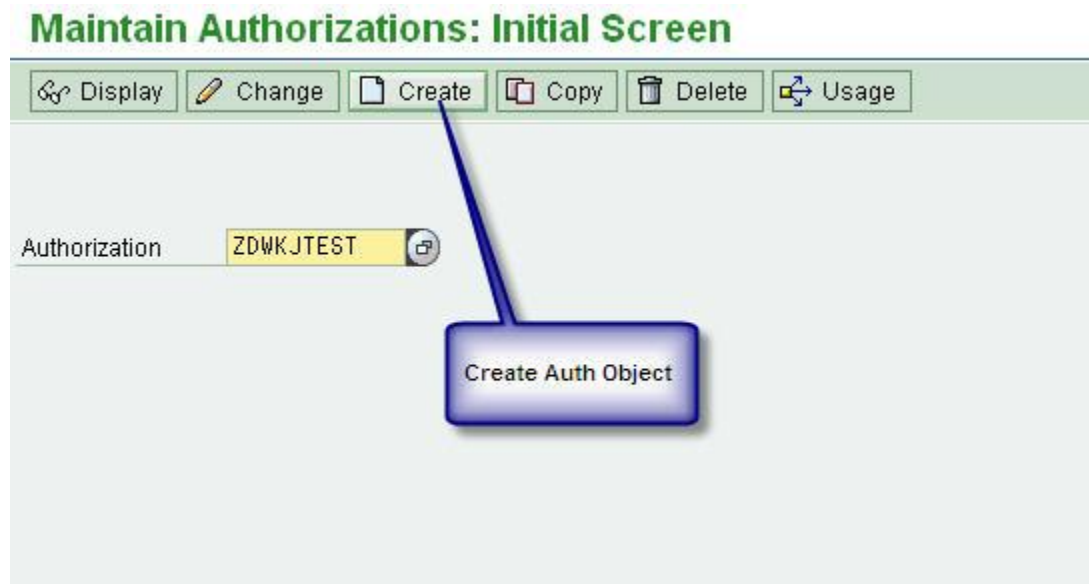
Management of Analysis Authorizations



We can also use tcode **RSECAUTH** directly to come to maintenance screen:



We have to give the technical name of the Authorization Object (ZDWKJTEST) then hit the create button:



The very first step of creating any Authorization Object is to add the special characteristics as field for restrinction:

Maintain Authorizations: ZDWKJTEST Create

Change <-> Display Check Format Usage Information

Authorization: ZDWKJTEST Last Changed: 02/25/2009 10:22:28

Short Text: Test KJ

Medium Text: Test KJ

Long Text: Test KJ

Auth. Structure

Charact/Dimensions	Description	Intervals	Node

The below 3 characteristics are mandatory for defining any Authorization Object. If we don't have this we will get no access to any InforProvider. By default this gives us access to all the InfoProvider(Full Access), but we can also set the value of InfoProvider for which we want the Authorization Object to work.

Maintain Authorizations: ZDWKJTEST Create

Change <-> Display Check Format Usage Information

Authorization: ZDWKJTEST Last Changed: P00026869 02/25/2009 10:22:28

Short Text: Test KJ

Medium Text: Test KJ

Long Text: Test KJ

Auth. Structure

Charact/Dimensions	Description	Intervals	Node
<u>@TCAACTIV</u>	Activity in Analysis Authorizations	[]	
<u>@TCAIPROV</u>	Authorizations for InfoProvider	⊗	
<u>@TCAVALID</u>	Validity of an Authorization	⊗	

Now I am adding the infoobject(ZDWSLTER) for which we want to add restriction:

Maintain Authorizations: ZDWKJTEST Edit

Change <-> Display Check Format Usage Information

Authorization: ZDWKJTEST Last Changed: P80026869 02/25/2009 11:12:55

Short Text: Test KJ

Medium Text: Test KJ

Long Text:

Added the Characteristic on which we want Authorization to Work

Auth. Structure

Charact./Dimensions	Description	Intervals	Node
OTCAACTVT	Activity in Analysis Authorizations	[]	
OTCAIPROV	Authorizations for InfoProvider	x	
OTCAVALID	Validity of an Authorization	x	
ZDWSLTER	Territories (All)		

We can double click on the newly added infobject, and can define the value which we want to allow for this InfoObject. We can also set the dynamic value using Customer Exit Code which we will cover later in this blog.

Maintain Authorizations: ZDWKJTEST Edit

Change <-> Display Usage Information

Authorization: ZDWKJTEST

Description: Test KJ

Charact: ZDWSLTER

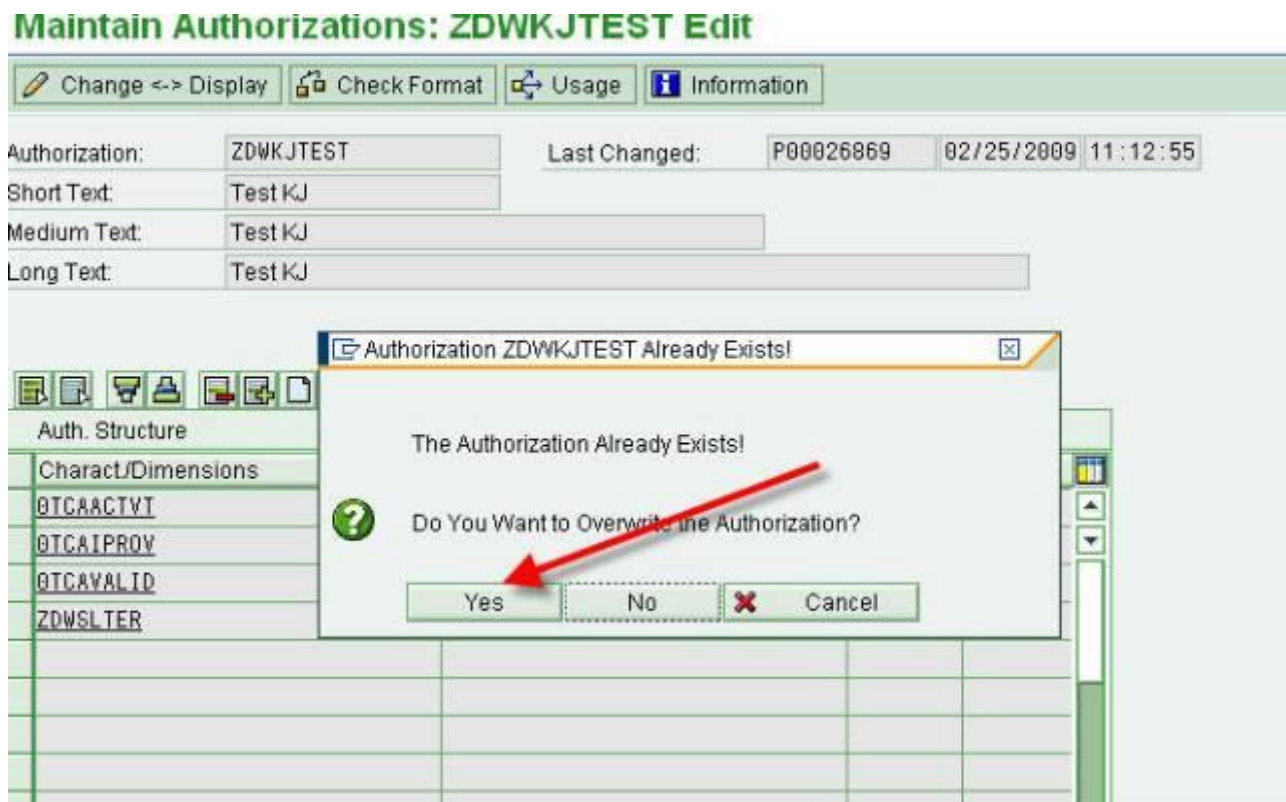
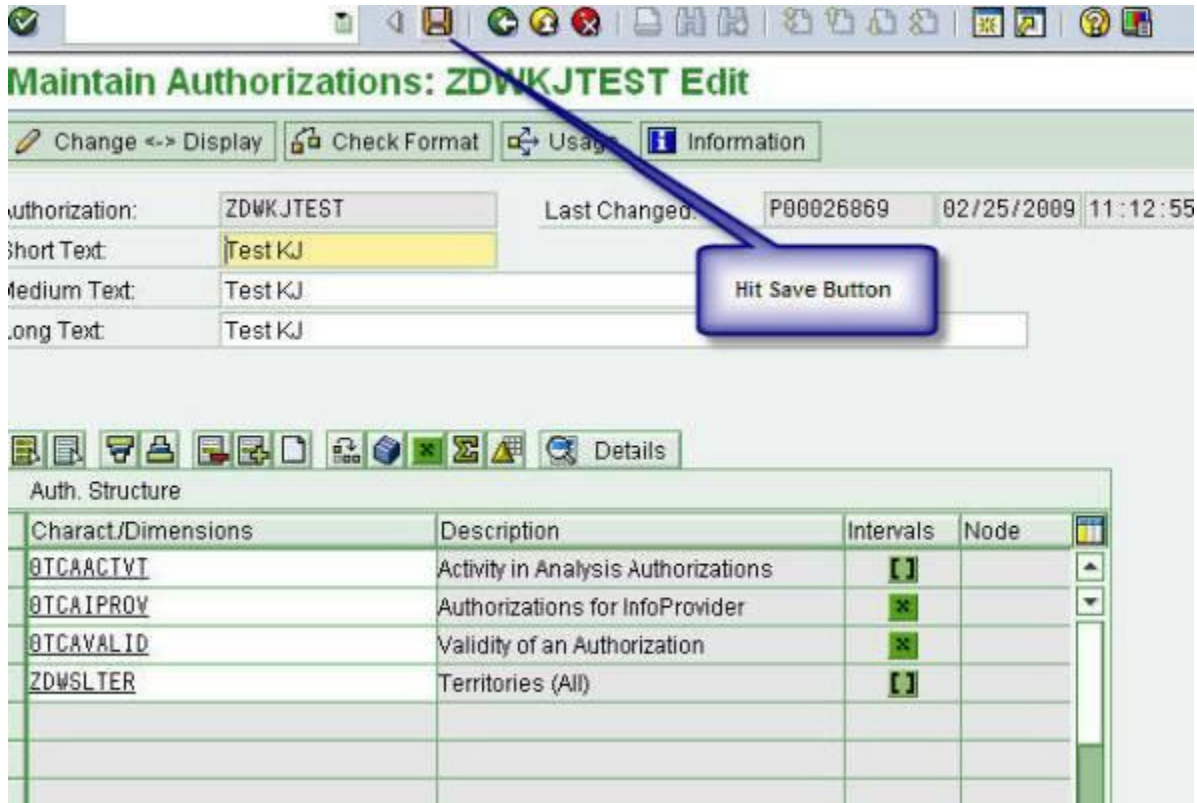
Manually Restrict Auth Object Value as 1101105

1 Value Authorizations Hierarchy Authorizations

Single Intervals

I	O	Technical Character. (from)	Technical Charact. Value (to)
I	EQ	1101105	

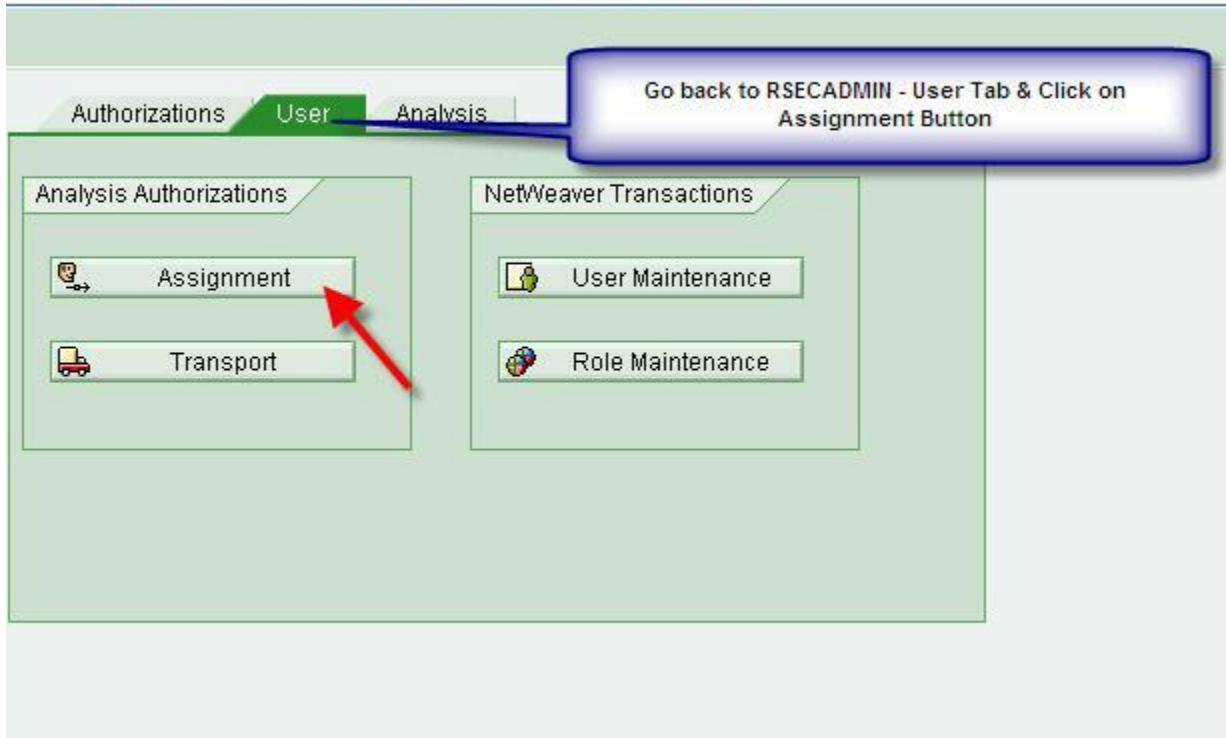
Saving the changes:



Assigning Authorization Objects to Users:

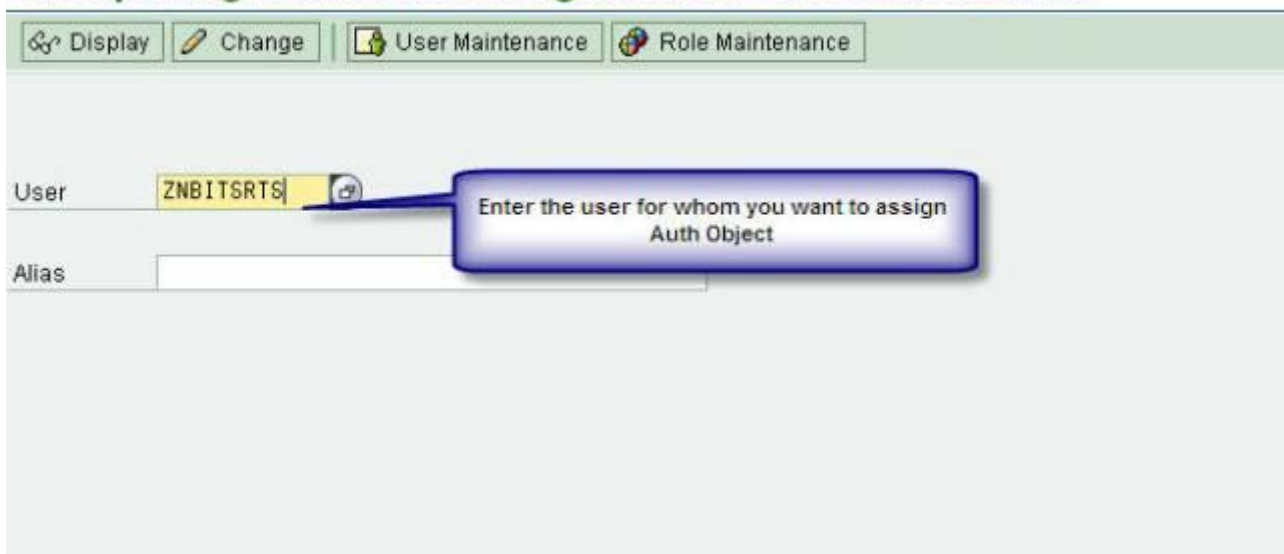
Go back to previous screen (RSECADMIN) by hitting the back button, and click on assignment button under user tab:

Management of Analysis Authorizations



Now we can assign the created Authorization Object to any user using this tool.

BI Reporting: Init. Screen Assignment of User Authorizations





Adding the created Authorization Object (ZDWKJTEST) to the user ZNBITSRTS. I will be using the same user through out this blog for running any query so that it can use the restrictions which are applying using the Authorization Object.

Assignment of User Authorizations: Edit

Change <-> Display Usage User Maintenance Role Maintenance Information

Authorization Selections:

Name (techn.) ZDWKJTEST  Insert  Nodes

User:

Name: ZNBITSRTS
Last Change: P00026869

Manual or Generated Role-Based



Assigned Authorizations

Auth.	Short Descr.	Origin

Assignment of User Authorizations: Edit

Change <-> Display Usage User Maintenance Role Maintenance Information

Authorization Selections:


Name (techn.) ZDWKJTEST  st KJ  Nodes

User:

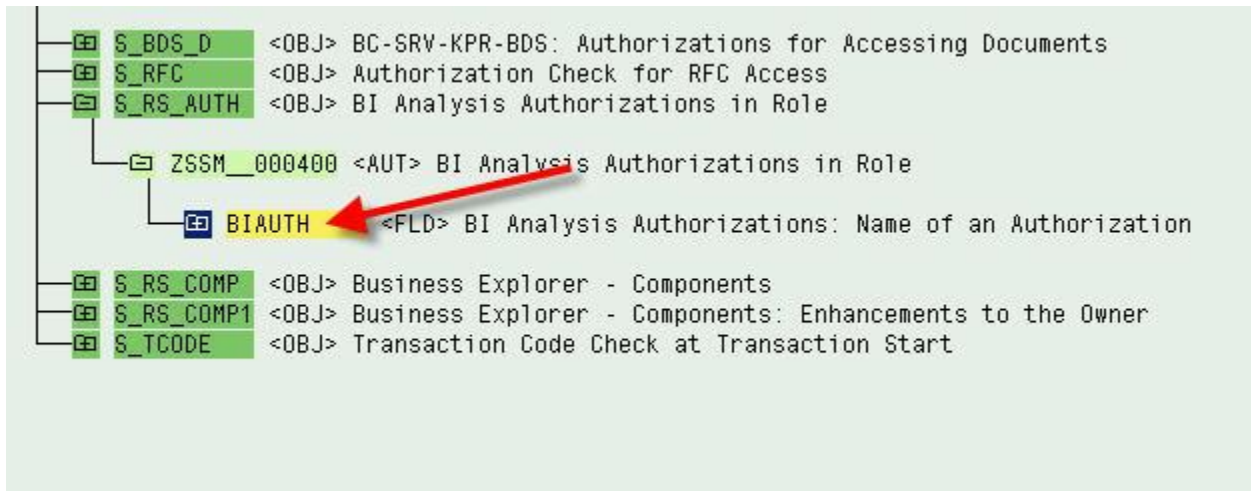
Name: ZNBITSRTS
Last Change: P00026869 02/

Manual or Generated (1) Role-Based

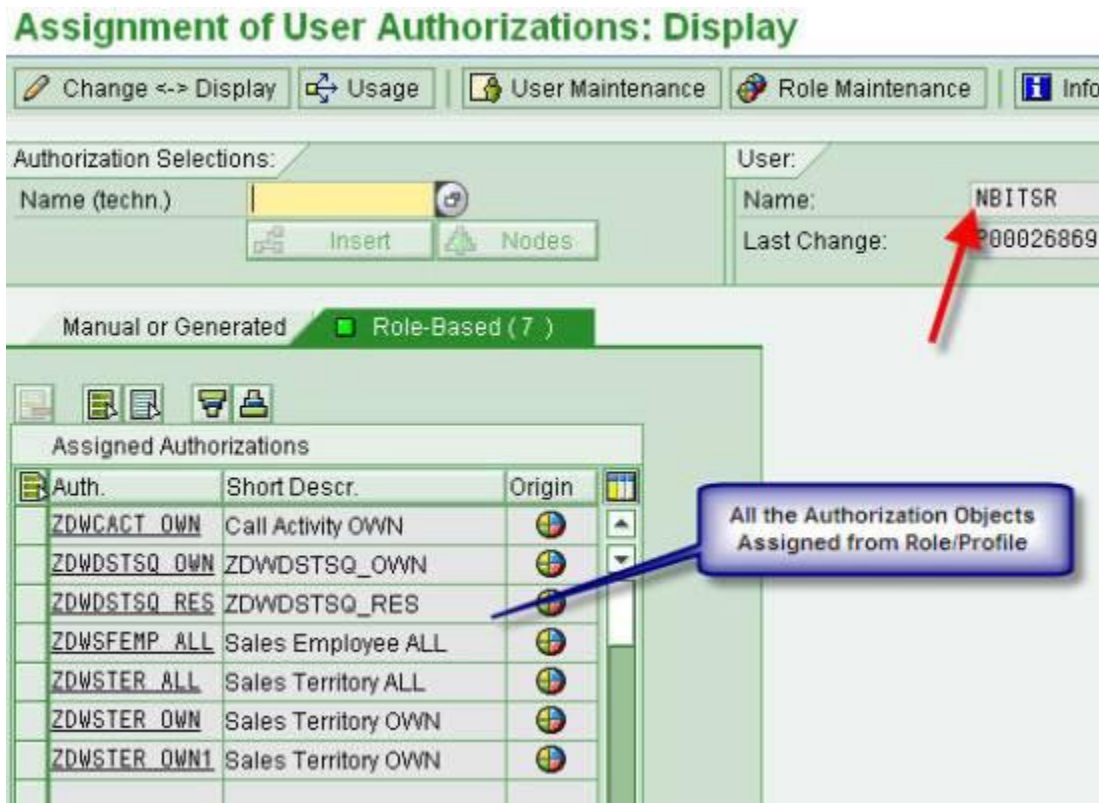
Assigned Authorizations

Auth.	Short Descr.	Origin
ZDWKJTEST	Test KJ	

We can also assign the authorization to users through role/profile using the standard Authorization Object S_RS_AUTH:



We can check the Authorization Objects assigned using roles/profile for any user using tcode RSU01 or we can also use the path tcode RSEADMIN->user tab->assignment->user->role-based



User with Authorization Object OBI_ALL is having full access to data, and can overwrite any other Authorization Objects assignment to it.

Assignment of User Authorizations: Display

Change <-> Display Usage User Maintenance Role Maintenance

Authorization Selections:
Name (techn.) [] Insert Nodes

User:
Name:
Last Change:

Manual or Generated **Role-Based (1)**

Assigned Authorizations

Auth.	Short Descr.	Origin
0BI_ALL		

0BI_ALL - Access to all Objects

Query on InfoProvider with Authorization Objects: Below is the test query in which I added the InfoObject for which we created the test Authorization Object (ZDWKJTEST).

Free Characteristics Columns Territories (All) (Drilldown Cr)

Advanced
General Display Hierarch

Description
Territories (All)
 Use Standard Text

Technical Name
ZDWSLTER

Area for Dimensions

Area for Dimensions

Rows
Territories (All)

Preview
Record Cou
a-Territorie
b-Territorie

Area for Dimensions

Same Object on which we created Auth Object

I am running the query with the same user name (ZNBITSRTS) whom we assigned the Authorization Object (ZDWKJTEST).:

Welcome

Same User ID Password for which we Assigned our ZDWTESTKJ Auth Object

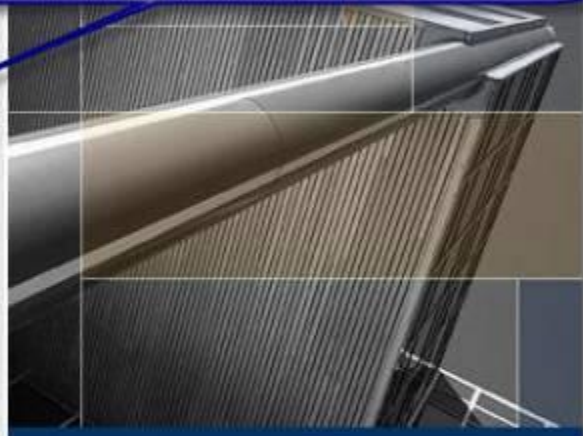
Your certificate will be mapped to your user ID

User ID and Password Logon Page

User ID *

Password *

Logon Problems? [Get Support](#)




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The query output displays the authorization error, and we can check the error log using tcode **RSECPROT**:

 You do not have sufficient authorization

Test Auth Query- KJ

User is not authorized

 **User is not authorized**

Authorization Logs: Selection

Configure Log Recording Information

Tcode RSECPROT, you can get to the same screen from RSECADMIN->Analysis->Error Logs

Selection Criteria

UTC time stamp in short form 00/00/0000 00:00 to 00/00/0000 00:00

Executing User ZNBITSRTS to

Restricted User to

Data Source

From Database From Archive

Give the Same User with which we assign Auth Object, and Ran Query

Number of Selected Logs: 27

Restrictions

Exec. User	Restr. Use	Date	Time	UUID
ZNBITSRTS	ZNBITSRTS	02/25/2009	11:52:38	49A58A3740F90225E1008000AC1812B2
ZNBITSRTS	ZNBITSRTS	02/25/2009	11:56:52	49A3BB14E23D0142E1008000AC1812B2

Select the last log

The below log explains we are missing with some of the characteristics for the created object. Logically we can think that we are only using one characteristic in our query and we did add it in Authorization Object, but why still we are getting Authorization Error? The reason is we always have to add all the authorization relevant InfoObject's of the InfoProvider on which we created query.

Relevant Characteristics for Detailed Authorization Check
 (Characteristics with Full Authorization Are Not Listed!)
 List of Effective Authorization-Relevant Characteristics for InfoProvider ZDWM0003:

BCALYEAR
ZDWAREA
ZDWCAREA
ZDWCDIVSN
ZDWCRGN
ZDWCSFRCE
ZDWDIVSN
ZDWHCPALC__ZDWSLTER1
ZDWHCPALC__ZDWSLTER2
ZDWHCPALC__ZDWSLTER3
ZDWHCPALC__ZDWSLTER4
ZDWHCPALC__ZDWSLTER5

The log says we are missing with Characteristics from Inforprovider which are Authorization Relevant

Now I added all the missing InfoObject's with full access for the Authorization Object (ZDWKJTEST):

Authorization: ZDWKJTEST Last Changed: P00026869 02/25/2009 11:36:10

Short Text:
 Medium Text:
 Long Text: TestKJ

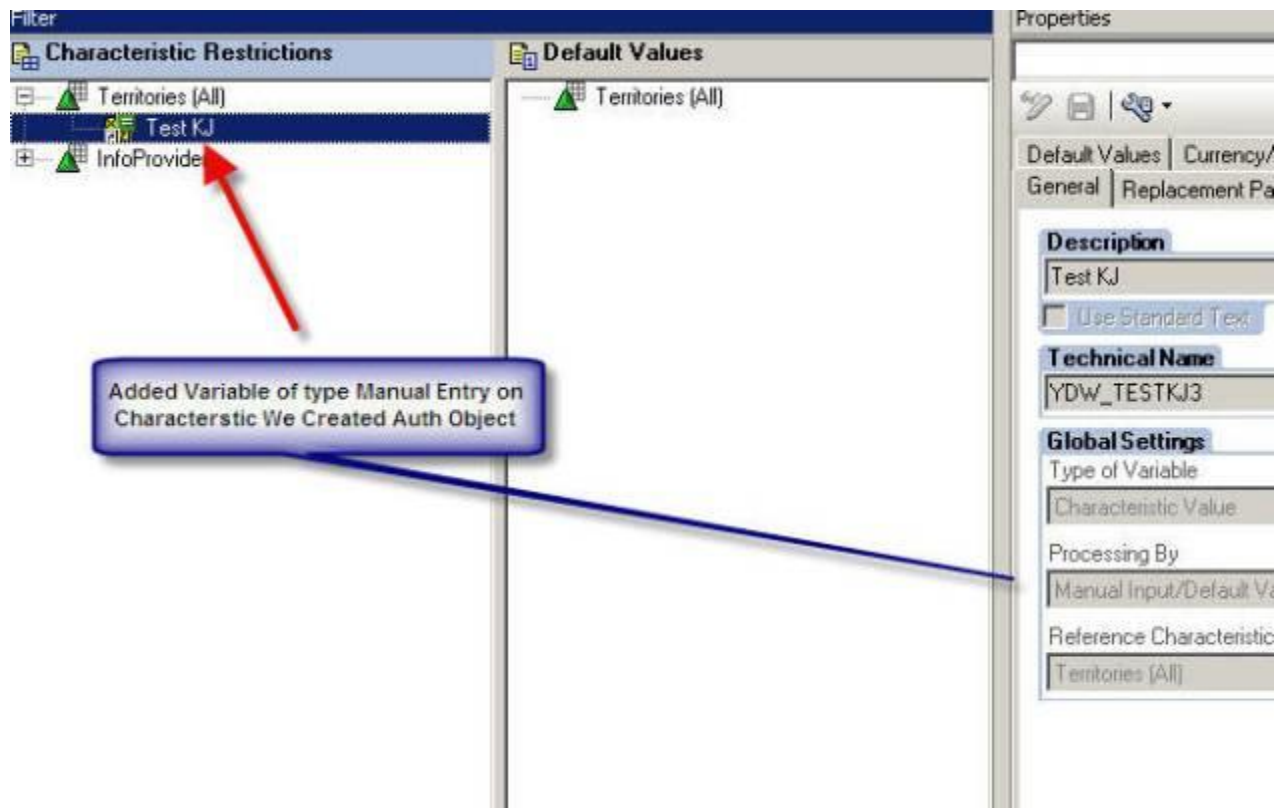
Either give Full Authorization to all of them or assign the values based on your requirement.

Auth. Structure

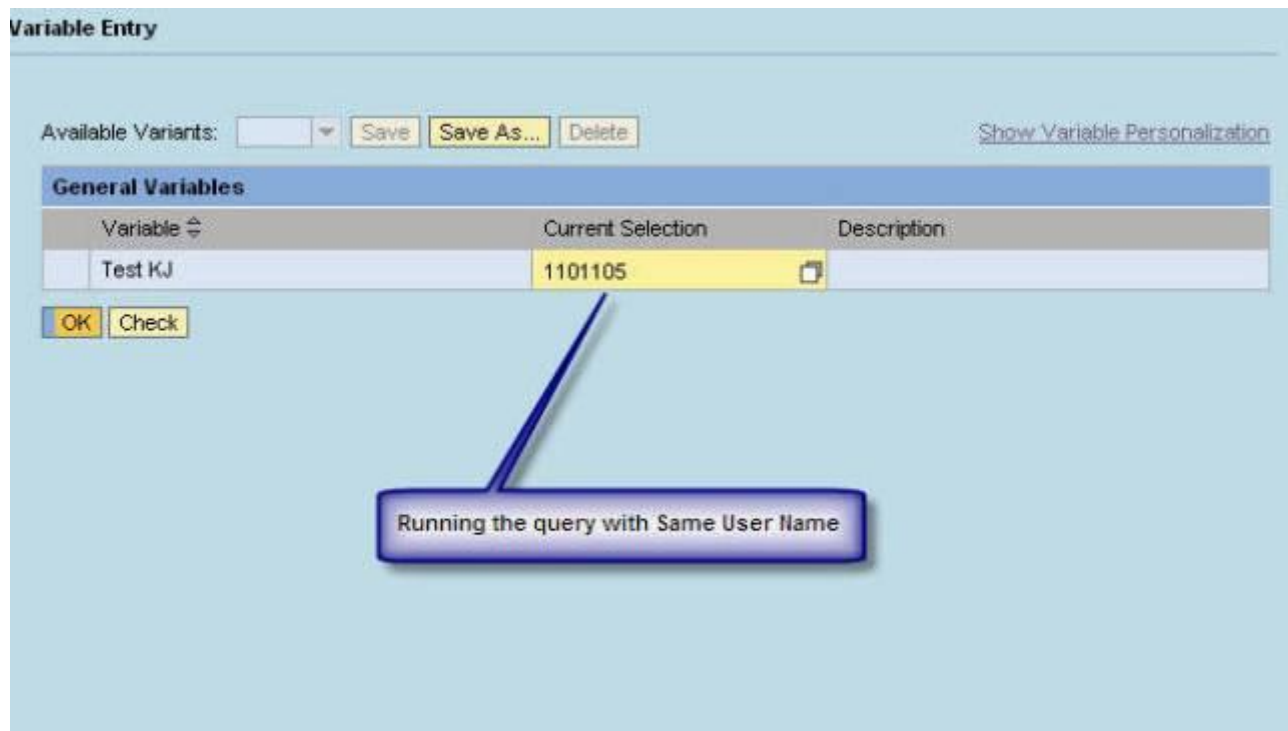
Charact/Dimensions	Description	Intervals	Node
<u>OTCAACTVI</u>	Activity in Analysis Authorizations		
<u>OTCAIPROV</u>	Authorizations for		
<u>OTCAVALID</u>	Validity of an Auth		
<u>ZDWSLTER</u>	Territories (All)		
<u>OTCAKYFNM</u>	Key Figure in Analysis Authorizations		
<u>BCALYEAR</u>	Calendar Year		
<u>ZDWAREA</u>	Sales Area		
<u>ZDWCDIVSN</u>	CPR Sales Division		
<u>ZDWCRGN</u>	CPR Sales Region		
<u>ZDWCSFRCE</u>	CPR Sales Force		
<u>ZDWDIVSN</u>	Sales Division		
<u>ZDWPAREA</u>	POD Area		

Add all the Auth Relevant Characteristics of the InfoProvider in the Created Auth Object

I have restricted the query with input ready variable on InfoObject territory (ZDWSLTER):



Running the query with the same territory what I assigned for territory field of Authorization Object:



The query returns output without any authorization error:

Test Auth Query- KJ

Information | Print Version | Export to Excel | Back | Filter | Comments | Save As

Territories (All) ▾	Record Count ▾
1101105	22.000

No Auth Error

We can check the log in RSECPROT for the last run of query:

Node Authorizations | Authorization Check

End of Preprocessing

Filling the Buffer...
 ... Buffer Filled
 Main Check:

Subselection (Technical SUBNR) 1
 Supplementation of Selection for Aggregated Characteristics
 No Check for Aggregation Authorization Required

Following Set Is Checked		Comparison with Following Authorized Set		Result	Remaining Set
Characteristic	Content(in SQL Format)	Characteristic	Content(in SQL Format)		
0TCAACTVT	ZDWSLTER = '1101105'	0TCAACTVT	IEQ 03	Authorized ✓	
ZDWSLTER	AND 0TCAACTVT = '03'	ZDWSLTER	IEQ 1101105		

Subselection (SUBNR) Is Authorized

Running the same query with some different territory number:

Variable Entry

Available Variants: Save Save As... Delete [Show Variable Personalization](#)

General Variables		
Variable	Current Selection	Description
Test KJ	1101101	

OK Check

Running the same query for different entry than what we assign in Auth Object

We got the authorization error because of the value which we assigned for the object is not same as what we passed:

You do not have sufficient authorization

Test Auth Query- KJ

Information Print Version Export to Excel Back Filter Comments Save As

User is not authorized

User is not authorized

Auth Error

Node- and Value Authorizations Are OK
End of Preprocessing

Filling the Buffer...
...Buffer Filled
Main Check

Subselection (Technical SUBNR) 1
Supplementation of Selection for Aggregated Characteristics
No Check for Aggregation Authorization Required

Following Set Is Checked		Comparison with Following Authorized Set		Result	Remaining Set
Characteristic	Content(in SQL Format)	Characteristic	Content(in SQL Format)		
OTCAACTVT	ZDWSLTER = '1101101'	OTCAACTVT	IEQ 03	Not Authorized ⚠	
ZDWSLTER	AND OTCAACTVT = '03'	ZDWSLTER	IEQ 1101105		

Authorization Variable on Query:

Using the Authorization Variable we can populate the value of InfoObject at run-time directly from the Authorization Object field's value.

The screenshot shows the SAP authorization configuration for the authorization object 'Test Auth- KJ'. The left pane shows the 'Characteristic Restrictions' tree with 'Test Auth- KJ' selected. The right pane shows the 'Default Values' for this object, including 'Territories (All)'. A callout box points to the 'Test Auth- KJ' entry in the tree, stating 'Authorization Variable on the same Auth Object'. The right pane also shows the 'Description' (Test Auth- KJ), 'Technical Name' (YDWTESTAUTHKJ), and 'Global Settings' (Type of Variable: Characteristic Value, Processing By: Authorization, Reference Characteristic: Territories (All)).

If we have authorization variable defined for the query and when we run the query it will not prompt us for the variable selection screen & will run the query directly for the value we defined for the field of the Authorization Object.

Test Auth Query- KJ

Information | Print Version | Export to Excel | Back | Filter | Comments | Save As

Territories (All) ⇅	Record Count ⇅
1101105	22.000

Query with Authorization Variable Runs The Report Automatically By Taking The Value Of Variable From Auth Object

Rather than assigning the fixed values in the authorization object, we can also define the technical name of the customer exit variable in the field's value starting with '\$' symbol which will read the value of Authorization at query run-time based on the return value of customer exit code:

Maintain Authorizations: ZDWKJTEST Edit

Change <-> Display | Usage | Information

Authorization: ZDWKJTEST
 Description: Test KJ
 Charact. ZDWSLTER Territories (All)

1 Value Authorizations | Hierarchy Authorizat

Single Intervals

I...	O...	Technical Character. (from)	Technical Charact. Value (to)
I	EQ	\$ZTA	

Auth Object with Value Populating From Customer Exit Code

Below is the sample code which reads the territory based on the portal login-id from the reference table which we have in our BI system:

BAP Editor: Display Include ZXRSRU01

include ZXRSRU01 Active

```
AUTHORIZATION WITH THE VALUE OF THE SALES REP MASTER RECORD ASSIGNMENT.  
  
case i_vnam.  
  when 'ZTA'.  
    data: v_terr type /bic/azdwd001.0 /bic/zdws1ter.  
    clear: v_terr.  
  
    if i_step = 0.  
      select single /bic/zdws1ter /bic/zdwpfunc from /bic/m... into (v_terr, v_part)  
        where /bic/zdws1ter = sy-uname  
          and objvers = 'A'.  
      if not v_terr is initial and v_part = '04'.  
        clear l_s_range.  
        l_s_range-low = v_terr.  
        l_s_range-sign = 'I'.  
        l_s_range-opt = 'EQ'.  
        append l_s_range to a_t_range.
```

Based on employee login table you can determine his territory, and assign it at runtime using Auth Object

Use of ':' Symbol in Authorization Objects Field's Value:

Now I am covering the scenario where query is not using any InfoObject for which we have restriction of values in the Authorization Object. I have added division as object in query which is having full authorization access, and now we don't have any territory object in query anymore:

Running Query with the different Characteristics which is Also Auth Relevant but has Full Access

Free Characteristics

Columns

- Key Figures
 - Record Count

Properties

Sales Division (Drilldown Character)

General | Display | Hierarchy | Pla

Description

Sales Division

Use Standard Text

Technical Name

ZDWDIVSN

Area for Dimensions

Area for Dimensions

Rows

Sales Division

Preview

Record Cou
a-Sales Divi
b-Sales Divi

Maintain Authorizations: ZDWKJTEST Display

Change <-> Display Usage Information

Authorization: ZDWKJTEST Last Changed: P00026869 02/25/2009

Short Text: Test KJ

Medium Text: Test KJ

Long Text: Test KJ

Details

Auth. Structure


Charact./Dimensions	Description	Intervals	Node
BCALYEAR	Calendar Year	☒	
DTCAACTVT		☐	
DTCAIPROY	Full Access for ZDWDIVSN	☒	
DTCAKYENH	Key Figure In Analysis Authorizations	☒	
DTCAVALID	Validity of an Authorization	☒	
ZDWAREA	Sales Area	☒	
ZDWCAREA	CPR Sales Area	☒	
ZDWCDIVSN	CPR Sales Division	☒	
ZDWCRCGN	CPR Sales Region	☒	
ZDWCSEFCE	CPR Sales Force	☒	
ZDWDIVSN	Sales Division	☒	

Even though the division object is having full authorization access, still when we run the query we get authorization error:

Test Auth Query- KJ

Information Print Version Export to Excel Back Filter Comments Save As

User is not authorized

 **User is not authorized**

Even though division is having full access user is getting auth error because of the territory authorization which we have for the same inforprovider

By checking authorization log we can clearly see even though the query is not using territory InfoObject it still checks for its value at query runtime because this object is part of InfoProvider on which we have defined the query:

Filling the Buffer...
...Buffer Filled
Main Check:

Subselection (Technical Characteristic) 9
Supplementation of Selection
Check Added for Aggregation

Even though we don't have Territory Object in Query but since this object is a part of the infoprovider for which we created characteristic so its checking for it

Authorizations missing for aggregation (":")

Characteristic	ZDWKJTEST
ZDWSLTER	IEQ 1101105

Entries marked with red do not have aggregation authorization
You can find more information about this here [1140831](#)

The authorization check stops here as this selection is no longer needed

Message EYE007: You do not have sufficient authorization

To avoid the authorization check for the objects which are not being used in the query definition we should always add ':' symbol in the authorization object field value which allows queries to run for all the values of object even if the object is not the part of the query:

Maintain Authorizations: ZDWKJTEST Edit

Change <-> Display Usage Information

Authorization: ZDWKJTEST
Description: Territories (All)
Charact.: ZDWSLTER

1 Value Authorizations Hierarchical Authorizations

Single Intervals

I	O	Technical Character. (from)	Technical Character. Value (to)
I	EQ	1101105	
I	EQ	:	

Once we defined ':' now the query works fine (without any authorization failure):

Test Auth Query- KJ

Information Print Version Export to Excel Back Filter Comments Save As

Sales Division	Record Count
1101100	22.000
1104100	2.000
1202200	5.000
5103200	1.000
5203200	17.000
#	62.000
Overall Result	109.000

Now it shows up value for all divisions

Below is the authorization log for the same:

Check Added for Aggregation Authorization: ZDWSLTER

List of authorizations that provide authorization for selection on "." (aggregation):

Characteristic	ZDWKJTEST
ZDWSLTER	IEQ:

You can find more information about this here [1140831](#)

In the following part of the check, the remaining characteristics will be checked

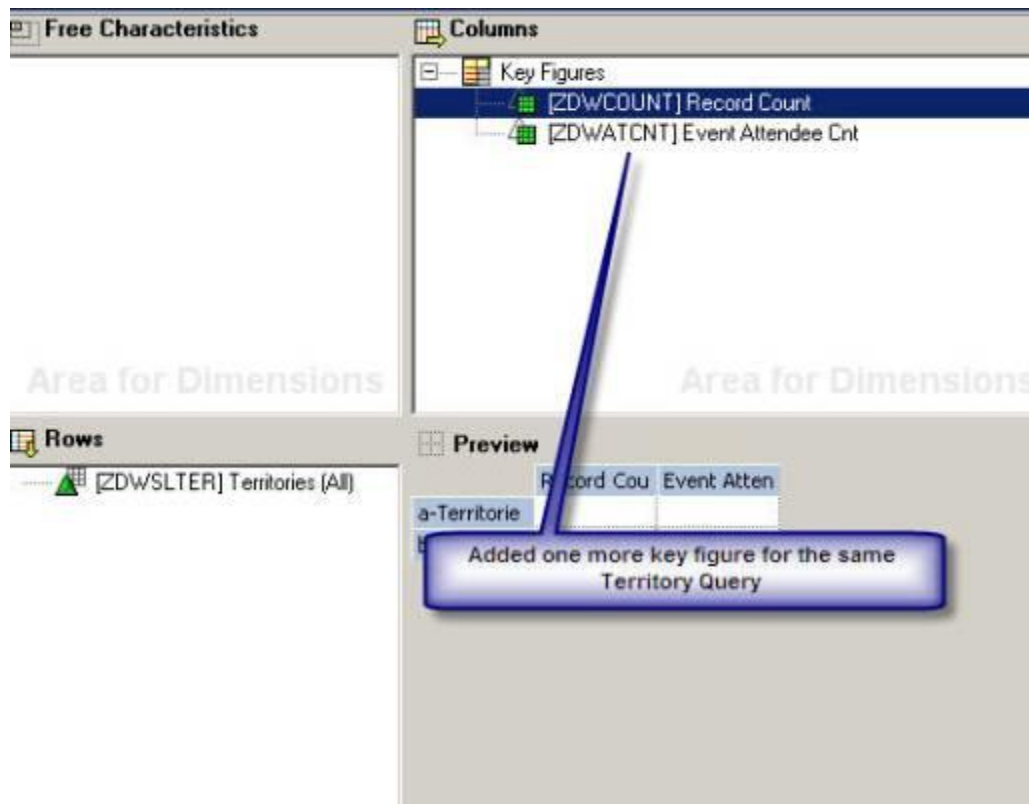
Following Set Is Checked		Comparison with Following Authorized Set		Result	Remaining Set
Characteristic	Content(in SQL Format)	Characteristic	Content(in SQL Format)		
0TCAACTVT	0TCAACTVT = '03'	0TCAACTVT	IEQ 03	Authorized ✓	

Subselection (SUBNR) Is Authorized

Authorization Check Complete

Authorization Objects on InfoObject's of type Key Figure:

I created one test query with 2 key figures as output.



Output of query:

Test Auth Query- KJ		
Information	Print Version	Export to Excel
Back	Filter	Comments
Save As		
Territories (All) ⇅	Record Count ⇅	Event Attendee Cnt ⇅
1101105	22.000	36.000
Overall Result	22.000	36.000

We can restrict this query to show the data only for one key figure. For this we just have to add the required key figure (Record Count - ZDWCOUNT) as value for the field 0TCAKYFNM of our test authorization object (ZDWKJTEST).

Maintain Authorizations: ZDWKJTEST Edit

Change <-> Display Usage Information

Authorization: ZDWKJTEST
Description: Test KJ
Charact. 0TCAKYFNM Key Figure in Analysis Authorizations

1 Value Authorizations Hierarchy Authorizations

Maintaining 0TCAKYFNM Characteristic with Key Figures Restriction

Single Intervals

I	O	Technical Character. (from)	Technical Charact. Value (to)
I	EQ	ZDWCOUNT	

Now the query will only show key figure ZDWCOUNT value

Now if we run the same query it will not show data for any other key figure except the one which we added in the authorization object definition.

⚠ You do not have sufficient authorization

Test Auth Query- KJ

Information Print Version Export to Excel Back Filter Comments Save As

Territories (All) ⌵	Record Count ⌵	Event Attendee Cnt ⌵
1101105	22.000	
Overall Result	22.000	

Query Output after adding Key Figure Restriction

The log also explains the reason of authorization error for 2nd key figure:

Main Check:

Subselection (Technical SUBNR) 1
 Supplementation of Selection for Aggregated Char
 No Check for Aggregation Authorization Required

2nd Column Key Figure is not same as the Key Figure allowed resulting in auth failure only for 2nd column

Following Set Is Checked		Comparison with Following Authorized Set		Result	Remaining Set
Characteristic	Content(In SQL Format)	Characteristic	Content(In SQL Format)		
0TCAACTVT	ZDWSLTER = '1101105'	0TCAACTVT	EQ 03	Not Authorized 🚫	
0TCAKYFNM	AND 0TCAACTVT = '03'	0TCAKYFNM	EQ ZD/WCOUNT		
ZDWSLTER	AND 0TCAKYFNM = 'ZDWATCNT'	ZDWSLTER	EQ 1101105 EQ :		

All Authorizations Tested

Message EYE007: You do not have sufficient authorization

No Sufficient Authorization for This Subselection (SUBNR)

Following CHANMIDs Are Affected:

Authorization Objects on InfoObject's of type Hierarchy:

I assigned brand hierarchy on the same test query:

The screenshot shows the 'Hierarchy' tab in the query configuration. A callout box points to the 'Selected Hierarchy' field, which contains 'ZDWBRAND_SF01'. Other settings include 'Activate Hierarchy Display' checked, 'Expand to level' set to 0, 'Use Hierarchy Setting' checked, 'Position of Lower-Level Nodes' set to 'Below', and 'Values of Posted Nodes' set to 'Always Show'.

The 'Rows' section shows 'Territories (All)' and 'Brand'. The 'Preview' table shows data for 'a-Territorie' and 'b-Territorie' with columns for 'a-Brand', 'b-Brand', and 'Record Cou'.

When we run the query it shows data for all the data brands as well the not-assigned brands:

Test Auth Query- KJ

Information | Print Version | Export to Excel | Back | Filter | Comments | **Hierarchy Output**

Territories (All) ▾	Brand ▾	Record Count ▾
1101105	▼ ZBRAND_SPOT	7.000
	▪ 20009	1.000
	▪ 20008	6.000
	▼ Not Assigned Brand (s)	15.000
	▪ #	15.000
Overall Result		22.000

We can restrict the hierarchy using Authorization Object to show data only for 1st Node of above displayed hierarchy:

Maintain Authorizations: ZDWKJTEST Edit

Change <-> Display | Usage | Information

Authorization: ZDWKJTEST
 Description: Test KJ
 Charact: ZDWSPDCT__ZDWBRAND

Authorization for Brand Hierarchy

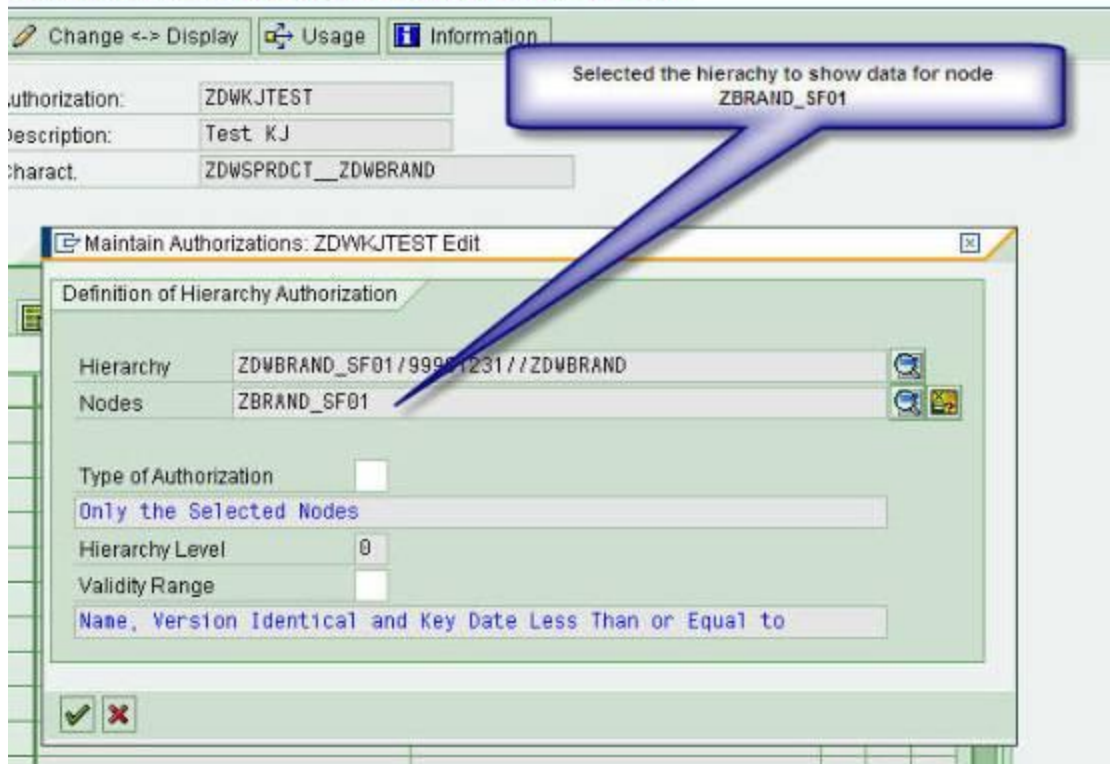
Value Authorizations | **Hierarchy Authorizations**

Create | Details

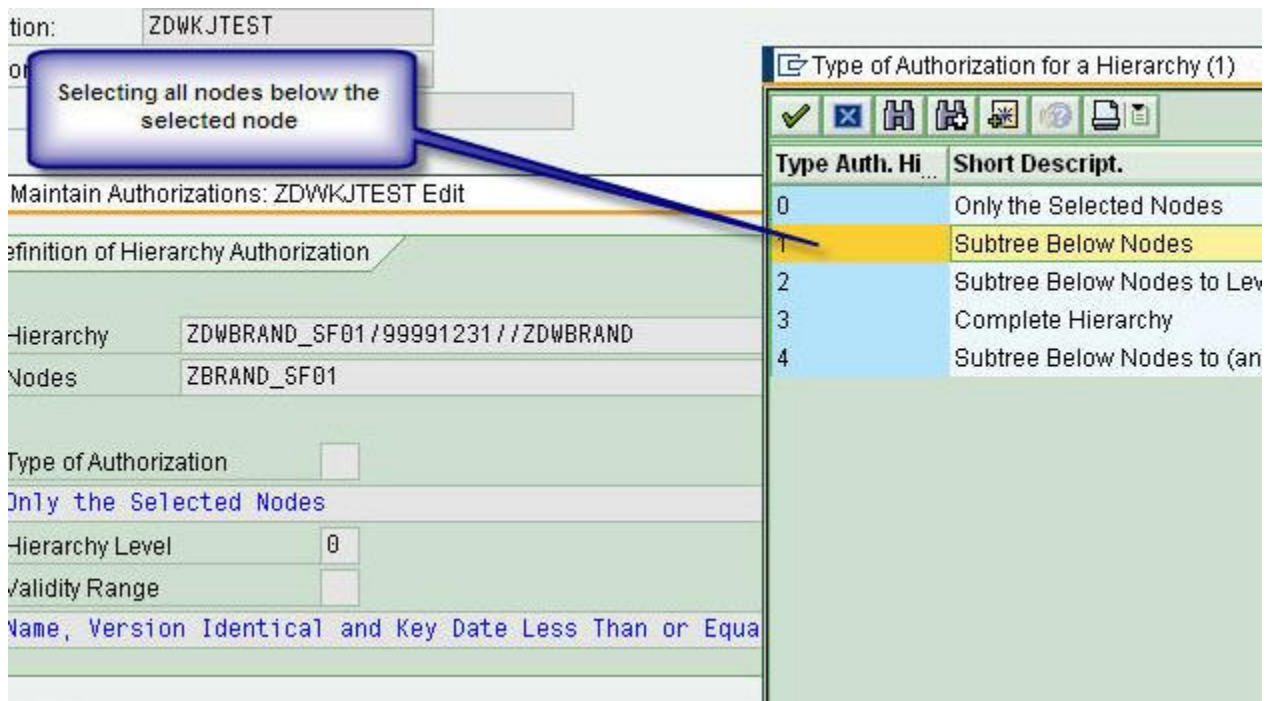
Hierarchy Node		Ty	Hi	Ar
Hierarchy Name	Technical Node Name			

Assigned the node:

Maintain Authorizations: ZDWKJTEST Edit



Selected the Type of Authorization as '1' which will allow the hierarchy to show all the nodes which are below the selected node:



Maintain Authorizations: ZDWKJTEST Edit

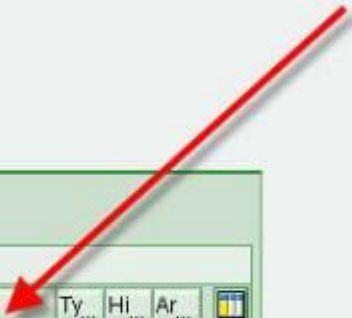
Change <-> Display Usage Information

Authorization: ZDWKJTEST
Description: Test KJ
Charact: ZDWSPRDCT__ZDWBRAND

Value Authorizations **Hierarchy Authorizations**

Create Details

Hierarchy Name	Technical Node Name	Ty...	Hi...	Ar...
ZDWBRAND_SF01	ZBRAND_SF01	1	0	



After adding the authorization on brand hierarchy now we only see the data for node which we restricted in the hierarchy authorization value:

Test Auth Query- KJ

Information Print Version Export to Excel Back Filter Comments Save As

Territories (All) ⇅	Brand ⇅	Record Count ⇅
1101105	▼ ZBRAND_SF01	7.000
	▪ 20009	1.000
	▪ 20008	6.000
Overall Result		7.000

This way we have avoided showing no assigned node

