Authorization Objects – A Simple Guide

Applies to:
Netweaver 2004s Web Application Server SPS7

Summary
This guide is intended to demonstrate how to create and use the Authorization Concept in the most simplest of conditions. It is based on the Netweaver Web Application Server, and will utilize a table available in all R/3 systems.

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Author Bio
There did not appear to be any simple guide and explanation on how to create authorizations in the most simplest manner. Therefore, I thought I would create this basic guide that, I hope, explains the main principles and tasks needed for the beginner.

This Authorization Object method should only be utilized in the most basic of uses.
# Table of Contents

Introduction ...................................................................................................................................... 3  
Scenario ........................................................................................................................................... 4 
Create Authorization Field ............................................................................................................... 5 
Create Authorization Class & Object ............................................................................................... 6 
Create Role, Profile & Authorization ................................................................................................ 9 
Assign Role to User ....................................................................................................................... 12 
Code the Authorization Check ....................................................................................................... 13 
Testing ........................................................................................................................................... 14 
Copyright........................................................................................................................................ 15
Introduction

The Authorization Object mechanism is used to inspect the current user’s privileges for specific data selection and activities from within a program.

An **Object Class** contains one or more **Authorization Objects**.

![Diagram of Object Class - XYZ]

The **Authorization Object** is where Permitted Activity configurations are performed against specific **fields**. E.g. Change (being the activity) the material’s text – MAKTX (being the specific field), or Read (being the activity) a certain Customer (using Customer Number – KUNNR, as the specific field).

Before a **User** can be granted permission by the **Authorization Object**, the **User**’s Master Record is assigned a **Role**, which includes a **Profile**.

The **Profile** contains what is simply called the **Authorization** and is where the specific data for the **Authorization Object**’s **field** is assigned to the configured Permitted Activity. E.g. Allow changes to any Material Text, or read Customers between the ranges “AA100” & “BB999”.

![Diagram of User Master Record]

Finally the calling of the **Authorization Object** can be performed in code.
**Scenario**

We will be using table “TSTC” – Transaction Codes, which should exist in any R/3 version. The screen shots are taken from the SAP Netweaver 2004s Release 7.

We will demonstrate the selection of a record from this table, and due to the privileges revoked from the user, via an Authorization Object, the selection will be denied.

We will create a specific Authorization Field for which the check will be made against.

Then the Authorization Class and Authorization Object, in which the Field previously mentioned is added.

A new Role and Profile will contain the actual Authorization for data.

The Role will be assigned to the User Master Data.

Finally the Authorization Object will be called in Code.
Create Authorization Field

Transaction – SU20

Create a new Authorization Field by clicking on the Create button.

Enter “ZTCODE” and “TCODE” in the Field Name and Data Element, then Enter.

Notice the “Use in Authorization Objects” area at the bottom of the display.

Naturally, as we have just created this Field, it is not yet utilized in any Authorization Object.

Save, a “Local Object” will suffice.

The Field has now been created for use in any Authorization Object.
Create Authorization Class & Object

Transaction – SU21

Create a new Authorization Class (Object Class) by clicking on the Create button's drop down icon, then select "Object Class".

Maintain the Authorization Objects

Enter the new Object Class name, give it a description and Save.

Again, saving as a "Local Object" will suffice.

We now have the Object Class to add the new Authorization Object.

Select the newly created Object Class, and perform a similar action to before. Click on the Create button's drop down, this time selecting "Authorization Object".

Maintain the Authorization Objects

Object class: ZTRN

Text: TSTC Transaction code check

Author:

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In the Authorization Object’s create screen, enter a Name, and description.

Under the section “Authorization fields” enter two Field names. One being “ACTVT”, this is going to be responsible for the activities that will be permissible, and the other “ZTCODE” which is the Authorization Field, created earlier.

Note: If a suitable Authorization Field already exists, it is possible to re-use it. However, for this example, we are assuming it did not, to give exposure to all necessary tasks involved when dealing with Authorization Objects.

Be careful when navigating this screen, as it is a bit buggy.

Now press the “Permitted activities” button, at the bottom of the Create Authorization Object screen, to begin configuring what actions can be taken against our new field ZTCODE.

Save when prompted.

At the next popup, simply press the tick, button to continue.

Now we should be at the Define Values for the ACTVT field, where we will select 01, 02, and 03.

Save and exit.

All out Authorization Objects have now been created. Back out ALL THE WAY and check the creation and configuration in display mode.
Having assigned the Authorization Field to the Authorization Object just created. Return back to the Authorization Field – SU20, and check that the Field is actually assigned.

Double click in the “ZTCODE” Authorization Field line

List of Authorization Fields

<table>
<thead>
<tr>
<th>Authorization Field</th>
<th>Data element</th>
</tr>
</thead>
<tbody>
<tr>
<td>XMIEXTPGM</td>
<td>XMILOGPRG</td>
</tr>
<tr>
<td>XMILOGACC</td>
<td>XMILOGACC</td>
</tr>
<tr>
<td>ZTCODE</td>
<td>TCODE</td>
</tr>
</tbody>
</table>

On the next screen in the “Use in Authorization Objects” section, see the assignment.
Create Role, Profile & Authorization

Transaction – PFCG

We now have to create a Role, in which a new Profile will be added, and also an Authorization will be added that is responsible for permitting activities against specific data(fields) in the database – the actual authorization.

Enter a Role name and press the create Role button, then supply a description and Save.


On the next popup screen – “Choose Template”, select the “Do not select templates” option.
We are now in the Authorizations area where we will add specific activities to field data.

**Change role: Authorizations**

- **Maint.:** 0 Unmaint. org. levels, 0 open fields, Status: Changed
- ZTRANSCODE  Transaction role

Press the button "Manually", (Ctrl + Shift + F9) and enter the Authorization Object “Z_TCODE” created earlier. Select the Tick button to continue.

Expand all nodes.

Press the edit icon or line, of the “Activity” entry.

Select all three Activities that were earlier permitted, and Save.

Now select the edit icon or line, of the “Transaction Code” entry, and enter “SE01” in the “From” field, and Save.
This current Authorization will permit a Create, Change, or Read activity against ‘SE01’ data, in the field ZTCODE, which is based on the Data Element TCODE. So wherever TCODE is used, e.g. in table TSTC, we can now being to utilize the Authorization Object Z_TCOST.

Generate the Authorization using the generation button.

Accept the default values for the Profile which will be created.

Return to the previous Role screen, and notice that we now have a Profile assigned to our Role, in the “Information About Authorization Profile” area.

That completes the Role, Profile, and Authorization creation and configuration.
Assign Role to User

Transaction – SU01

Note: It is not in scope to explain how to create a user, so either, create a suitable user now, or select an appropriate one, so that the Role can be assigned. Also, make sure the user is able to execute a program in SE38, as this is how the Authorization will be tested and demonstrated.

Choose the User, and in Edit mode, select the Roles tab.

Assign the Role recently created, press Enter and Save.

Note: If the User is currently logged on, the User will have to log off and on again before the new Role assignment can be utilized.
Code the Authorization Check

Create the program as seen below to test the Authorization.

Note the Authorization check with the syntax beginning AUTHORITY-CHECK and the checking of the sy-subrc. Also, the '03' literal that is being passed into the Object check field "ACTVT" which denotes a "read", and the p_tcode parameter being passed into the Object check field "ZTCODE" which represents the actual data, wishing to "read".

```
REPORT zauth_check_demo.

DATA: wa_tstc TYPE tstc.
PARAMETERS: p_tcode TYPE tcode.

AUTHORITY-CHECK OBJECT 'Z_TCODE'
  ID 'ACTVT' FIELD '03'  " read access
  ID 'ZTCODE' FIELD p_tcode.   " actual value

IF sy-subrc EQ 0.  " check authorization
  * fetch record
  SELECT SINGLE *
  FROM tstc
  INTO wa_tstc
  WHERE tcode EQ p_tcode.

  WRITE:/ wa_tstc-tcode,
    wa_tstc-pgmna,
    wa_tstc-dypno,
    wa_tstc-menue,
    wa_tstc-cinfo,
    wa_tstc-arbgb.
ELSE.
  * bad authorization
  WRITE:/ 'Bad Authorization'.
ENDIF.
```
Testing

Transaction – SE38 with appropriate Test User, that has been given the Role previously created.

Execute the program above, in this case ZAUTH_CHECK_DEMO.

Enter an permitted value and run the program.

**Authorization Test Demo**

<table>
<thead>
<tr>
<th>Transaction Code</th>
<th>SE01</th>
</tr>
</thead>
</table>

Result

**Authorization Test Demo**

<table>
<thead>
<tr>
<th>Role</th>
<th>SE01</th>
<th>Role ID</th>
<th>3200</th>
<th>0</th>
</tr>
</thead>
</table>

Now enter any other value, and see the difference

**Authorization Test Demo**

<table>
<thead>
<tr>
<th>Transaction Code</th>
<th>SE38</th>
</tr>
</thead>
</table>

Result

**Authorization Test Demo**

<table>
<thead>
<tr>
<th>Role</th>
<th>Bad Authorization</th>
</tr>
</thead>
</table>
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