Implementing Dynamic SQL Analytic Privileges at National Gypsum

Howard Milstead, BI Data Engineer, National Gypsum Company
Don Krueger, Technology Director, National Gypsum Company
ASUG84427

About the Speakers

Howard Milstead

- BI Data Engineer, National Gypsum Company

- Data Architect on HANA project

- Over 10 years of SQL and BI development

Don Krueger

- Technology Director, National Gypsum

- Technical Lead for Suite on HANA project.

- 30 years of application/system management, design and development experience.

Key Outcomes/Objectives

1. What business case prompted National Gypsum to use Dynamic Analytic Privileges (APs)

2. Learn when to use Dynamic APs

3. Learn how to build objects necessary to implement Dynamic APs

ASUG

Agenda

- Why National Gypsum wanted to use Dynamic APs

- How Dynamic Privileges work at a high level

- Exploring the objects necessary to implement Dynamic Privileges

ASUG

About National Gypsum

- One of the largest gypsum board producers in the world headquartered in Charlotte, NC.

- 18 plants producing Gold Bond® BRAND gypsum board.

- 6 plants producing ProForm® BRAND interior finishing products.

- 4 plants PermaBase® BRAND cement board.

Use Case for Analytic Privileges

National Gypsum embarked on a greenfield implementation of Suite on HANA starting in 2015. We were directed to be very forward thinking about our reporting approach.

We are considered the industry leader in customer service and our historical approach to reporting tended to make us more reactive to issues. As we work to improve customer service we need to become more proactive and need to change our reporting model.

- Replacing 30 year old mainframe application for Suite on HANA
- Real-time reporting leaving data in place, no ETL
- Reporting tool agnostic
- Self service business intelligence using HANA views.
- Control who views data based on row data.
- Need to easily change data view access as workforce changes.

Scenario

- Three little league baseball teams with two coaches. One coach has one team and the other coach has two teams

- Each coach needs to see statistics only for their teams

- Each coach should not be able to see statistics for the other coach's teams
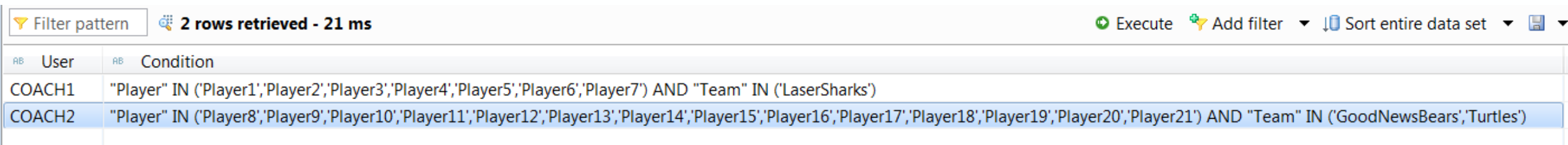
Building and configuring the objects

- Build the table and stored procedure

- Configure the calculation view to use SQL Analytic Privileges

- Create the Analytic Privilege

- Create the role

Build the table

The table consists of a user which is the key and a filter condition which the system uses to filter the data

User	Condition
COACH1	"Player" IN ('Player1','Player2','Player3','Player4','Player5','Player6','Player7') AND "Team" IN ('LaserSharks')
COACH2	"Player" IN ('Player8','Player9','Player10','Player11','Player12','Player13','Player14','Player15','Player16','Player17','Player18','Player19','Player20','Player21') AND "Team" IN ('GoodNewsBears','Turtles')

Filter pattern 　2 rows retrieved - 21 ms 　Execute 　Add filter 　Sort entire data set

Be sure to make the Condition field as large as possible

asug

Build the Stored Procedure

Set the parameter size and security for the procedure

```
CREATE procedure▮▮▮▮"SecGetCombinedTeamAndPlayerForUser"(out OUT_FILTER NVARCHAR(5000))

language sqlscript sql security definer reads sql data as

v_Filter NVARCHAR(5000);
```

Establish the cursor. We will get the row we need by matching the session user to the user in the table

```
CURSOR v_Cursor

FOR SELECT "Condition" FROM ▮▮▮▮"TeamsAccessCombined"

WHERE "User" = SESSION_USER;
```

Build the Stored Procedure cont.

Set the global parameter value to have a blank initial value

then find the condition for the session user

```
BEGIN

v_Filter := '';
FOR cur_row as v_Cursor
    DO
        v_Filter := cur_row."Condition";
    END FOR;
```

If there is no condition listed in the table for the user

then append the where clause with code that will produce no data.

```
IF v_Filter = ''
THEN OUT_FILTER := '"Player" IN('')';
```

Build the Stored Procedure cont.

If there is an '_ALL' entry in the "Condition" field,
then apply the following filter.

```
    ELSEIF v_Filter like '%_ALL or%'
        THEN OUT_FILTER := '"Team" IN(''LaserSharks'',
''GoodNewsBears'',
''Turtles'') AND
"Player" IN (''Player1'',
''Player2'',
''Player3'',
''Player4'',
''Player5'',
''Player6'',
''Player7'',
''Player8'',
''Player9'',
''Player10'',
''Player11'',
''Player12'',
''Player13'',
''Player14'',
''Player15'',
''Player16'',
''Player17'',
''Player18'',
''Player19'',
''Player20'',
''Player21'')';
```

Build the Stored Procedure cont.

Otherwise use the original v_Filter value
which is populated from the "Condition" field in the table

```
ELSE
OUT_FILTER := v_Filter;
END IF;

END;
```

Configure the calculation view

Navigate to the view properties and select "SQL Analytic Privileges" in the Apply Privileges section and activate the view
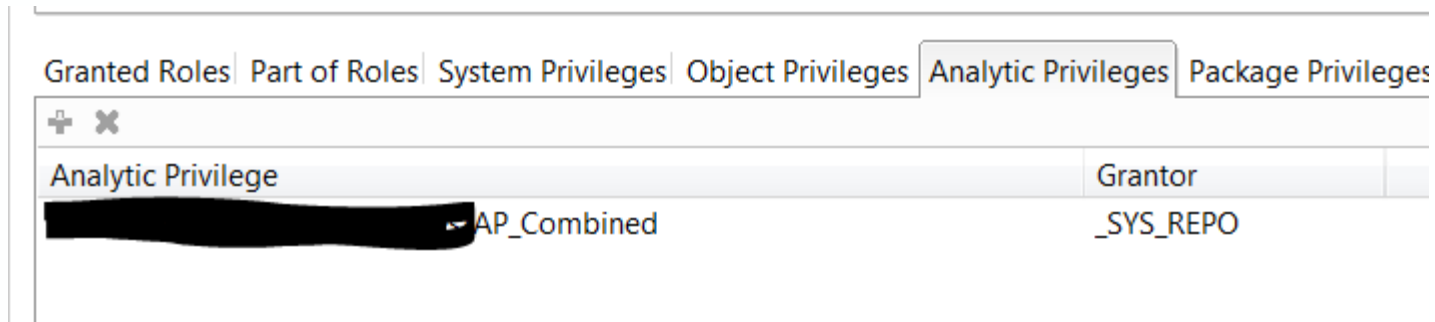
Create the Analytic Privilege

Create a new analytic privilege, choose dynamic as the type,
and select the stored procedure created earlier. Then add the view
which is configured to use SQL Analytic Privileges and activate the AP

Assign the Analytic Privilege to a role

Once you assign the role to the user, that user will be able to view the data from the calculation view and will only be able to see the rows that match the filter values configured in the filter table

Things to remember

- The SQL code must use string literals for the filters. You cannot use sub-queries

- If a view contains two attributes handled by two different APs, the system will combine the filters with an 'or' operator

Take the Session Survey.

We want to hear from you! Be sure to complete the session evaluation on the SAPPHIRE NOW and ASUG Annual Conference mobile app.

ASUG

Presentation Materials

Access the slides from 2019 ASUG Annual Conference here:
http://info.asug.com/2019-ac-slides

Q&A

For questions after this session, contact us at DJKrueger@NationalGypsum.com
and howardm@NationalGypsum.com

Let's Be Social.

Stay connected. Share your SAP experiences anytime, anywhere.
Join the ASUG conversation on social media: **@ASUG365 #ASUG**