



# Implementing Dynamic SQL Analytic Privileges at National Gypsum

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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

# 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

# About National Gypsum

**A Whole New Way to Look at Walls**

When you dream of building or remodeling your home, walls may be the last thing on your mind. But walls and what they're made of are important – and they're not all the same. National Gypsum's PURPLE® family of products provides unparalleled resistance to mold, moisture, scuffs and dents, and can even reduce the noise you hear between rooms. They're naturally fire resistant, GREENGUARD Certified for indoor air quality, and as easy to install and finish as standard drywall. So be sure to ask for PURPLE, and know you're getting the best.

- 1 XP® Gypsum Board**
  - For use in all rooms
  - Anywhere mold and moisture is a concern
  - Approved for walls and ceilings
- 2 SoundBreak® XP® Gypsum Board**
  - Rooms requiring sound control
  - Reduce sound coming into or out of a room
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- 3 Hi-Abuse® XP® Gypsum Board**
  - Rooms subject to added abuse
  - Scratch and scuff resistant
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  - Reduces airborne dust
  - Formulated to cause dust to fall straight to the ground
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  - Withstands prolonged exposure to moisture
  - Good behind ceramic tile in wet interior areas
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- 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

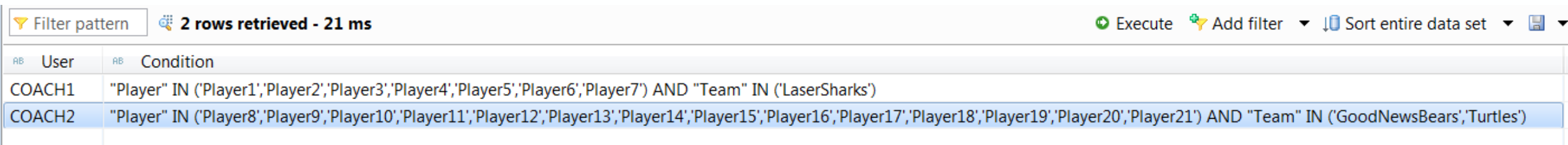
# Building and configuring the objects

- 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



The screenshot shows a data table interface with a search bar and several action buttons. The table has two columns: 'User' and 'Condition'. The first row is for 'COACH1' with a condition for 'LaserSharks' team. The second row is for 'COACH2' with a condition for 'GoodNewsBears' and 'Turtles' teams.

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')

Be sure to make the Condition field as large as possible

# Build the Stored Procedure

Set the parameter size and security for the procedure

```
CREATE procedure [redacted] "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 [redacted] "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

The image shows a screenshot of the SAP BW calculation view configuration interface. On the left, a diagram illustrates the view structure: a 'Semantics' node is connected to an 'Aggregation' node, which is connected to a 'Projection 1' node. Below this, a 'Projection\_1' node is connected to a 'TeamStats' node. On the right, the 'General' tab of the view properties is displayed. The view name is 'TeamStats'. The 'Apply Privileges' dropdown menu is highlighted in yellow and set to 'SQL Analytic Privileges'. Other properties shown include Data Category: CUBE, Type: STANDARD, Default Client: Cross Client, Count Star Column: (empty), and Default Schema: (empty).

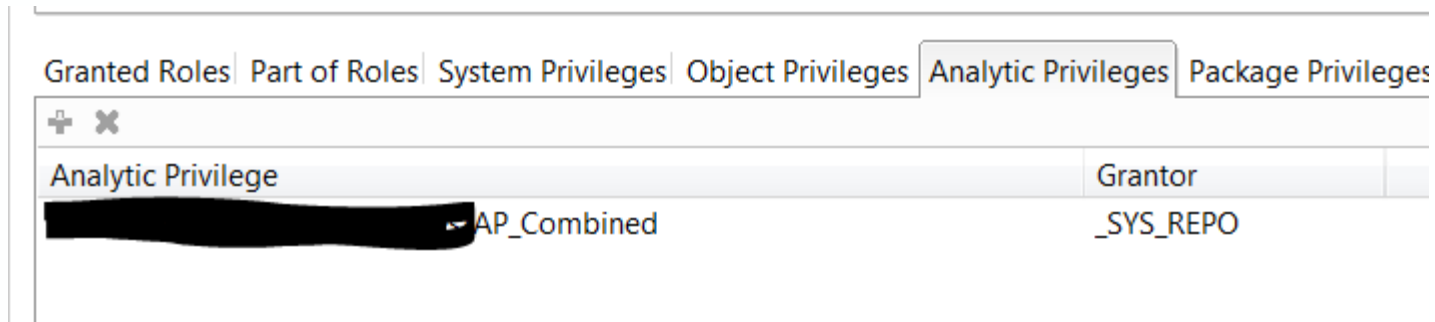
# Create the Analytic Privilege

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

The screenshot displays the SAP Security Manager configuration for a new Analytic Privilege. The interface is divided into several sections:

- General:** Describes general information about the Analytic Privilege. Fields include:
  - Name: AP Combined
  - Label: AP\_Combined
  - Type: SQL Analytic Privilege
- Secured Models:** Restrictions apply to all the models shown in the list below. A tree view shows:
  - Content
    - TeamStats [Redacted]Buttons for "Add..." and "Remove" are visible.
- Dynamic Configuration:** Radio buttons allow selection of "Attributes", "SQL Editor", or "Dynamic". The "Dynamic" option is selected. Below, it says "Define restrictions based on procedure".
  - Procedure Type: Catalog Procedure
  - Procedure Name: [Redacted].SecGetCombinedTeamAndPlayerForUser

# Assign the Analytic Privilege to a role



Analytic Privilege	Grantor
[REDACTED] AP_Combined	_SYS_REPO

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

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# 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](mailto:DJKrueger@NationalGypsum.com)  
and [howardm@NationalGypsum.com](mailto:howardm@NationalGypsum.com)

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