



SAS Visual Analytics on SAS Viya

Administration, Data Preparation & Visual Interface

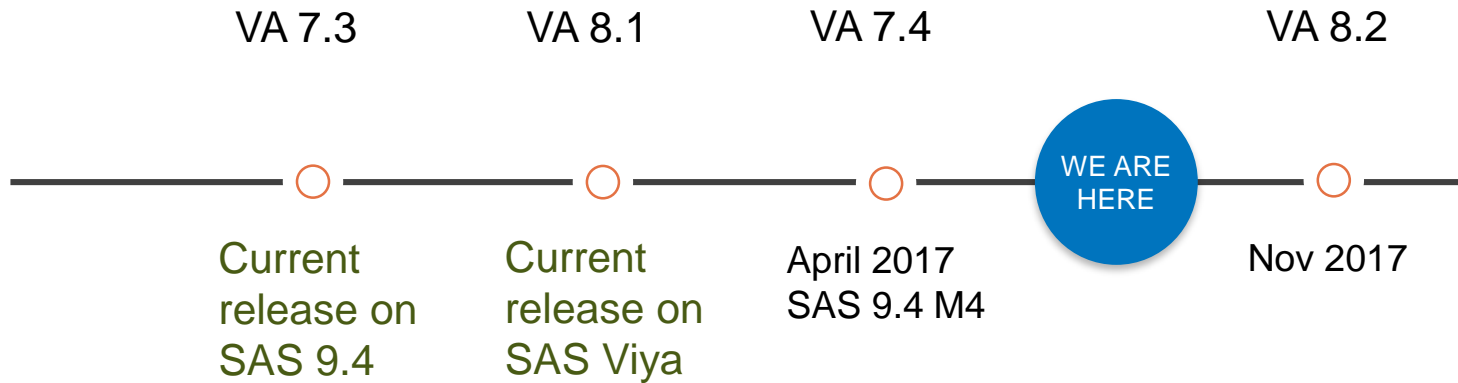
28.06.2017 Bonn

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Agenda

- Basic Administration Steps in SAS Environment Manager
- Loading data into CAS
- Using a Data Connector to access data
- Data Management in SAS Visual Data Builder
- SAS[®] Visual Analytics 8.2 on Viya[™]

SAS Visual Analytics 2017



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Authentication Basics

- The default authentication provider for Visual Analytics is LDAP
- Unlike in VA 7.x with Metadata Server, there is no longer the need to maintain user identity objects
- Default configuration after deployment: Authenticated users can access SAS Visual Analytics capabilities
- SAS Visual Data Builder requires membership in a custom group
- Administering SAS Visual Analytics requires membership in a custom group
- There is no predefined custom group for report viewing

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Predefined Custom Groups

| Group Name | Initial Authorizations | Assumable? | Initial Memberships |
|----------------------------|---|------------|---------------------|
| SAS Administrators | <p>Have access to:</p> <ul style="list-style-type: none">• all tasks in SAS Environment Manager and CAS Server Monitor• all folders and all objects that the folders contain (for example, plans and reports)• all application functionality (for example, functions in SAS Visual Analytics) <p>Note: Access to data (CAS libraries) is not included. For example, users in this group can create, run, and view reports only if they have explicitly been granted access to the underlying data.</p> | Yes | CAS Superuser role |
| Application Administrators | <p>Can access the following items from SAS Home:</p> <ul style="list-style-type: none">• Manage SAS Home• Manage Collections• SAS Theme Designer | No | None |
| Data Builders | Can access SAS Visual Data Builder and advanced import features. | No | None |
| Esri Users | Can access Esri systems for geo map access. | No | None |

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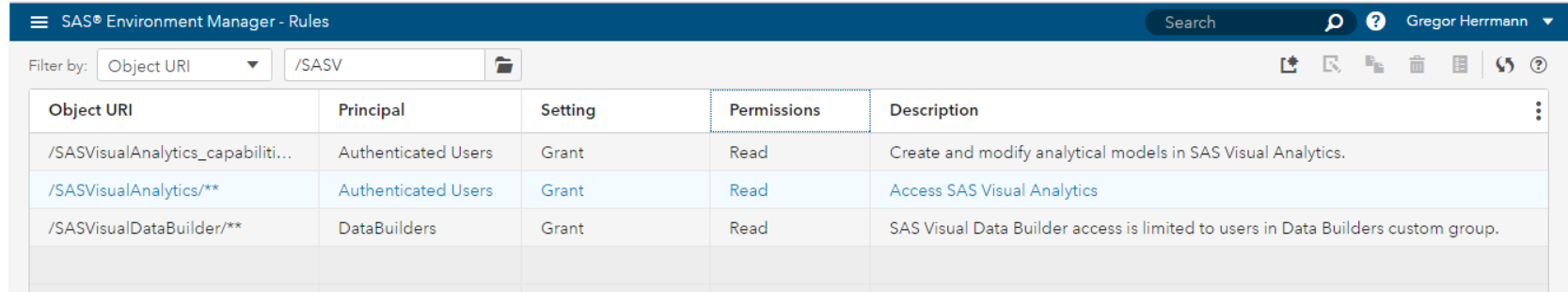
Using Custom Groups to restrict access

The following steps are necessary to restrict access to capabilities in SAS Visual Analytics 8.1

- Create a custom group in SAS Environment Manager for report authors
- Assign groups/users from LDAP that should be able to create reports to that custom group
- Replace Authenticated Users by the new custom group for report authors in the rules that grants access to SAS Visual Analytics
- Administering SAS Visual Analytics requires membership in a custom group
- There is no predefined custom group for report viewing

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Important default rules



The screenshot shows the 'SAS® Environment Manager - Rules' interface. At the top, there is a search bar and the user name 'Gregor Herrmann'. Below the search bar, a filter is set to 'Object URI' with the value '/SASV'. The main content is a table with the following columns: Object URI, Principal, Setting, Permissions, and Description. The table lists three rules:

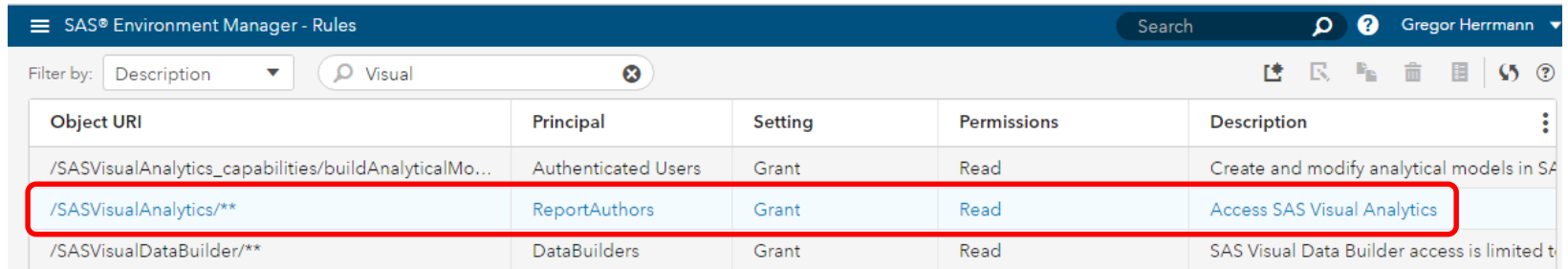
| Object URI | Principal | Setting | Permissions | Description |
|-------------------------------------|---------------------|---------|-------------|---|
| /SASVisualAnalytics_capabilities... | Authenticated Users | Grant | Read | Create and modify analytical models in SAS Visual Analytics. |
| /SASVisualAnalytics/** | Authenticated Users | Grant | Read | Access SAS Visual Analytics |
| /SASVisualDataBuilder/** | DataBuilders | Grant | Read | SAS Visual Data Builder access is limited to users in Data Builders custom group. |

- Authenticated Users have access to SAS Visual Analytics (including report creation)
- Authenticated Users can create models
- SAS Visual Data Builder requires membership in the DataBuilders custom group

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Restricting access for information consumers

- After successful deployment, all users that are able to authenticate can create SAS Visual Analytics reports
- To restrict authenticated users to a viewing role:
 - Create a custom group
 - Add report authors to that custom group
 - Replace the principal in the rule that grants access to SAS Visual Analytics with the newly created custom group



| Object URI | Principal | Setting | Permissions | Description |
|---|---------------------|---------|-------------|--|
| /SASVisualAnalytics_capabilities/buildAnalyticalMo... | Authenticated Users | Grant | Read | Create and modify analytical models in SA |
| /SASVisualAnalytics/** | ReportAuthors | Grant | Read | Access SAS Visual Analytics |
| /SASVisualDataBuilder/** | DataBuilders | Grant | Read | SAS Visual Data Builder access is limited to |

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Demo Authentication/Group Membership



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Loading Data into CAS

Available data sources without SAS/ACCESS module:

Local:

- SAS datasets (*.sas7bdat, *.sashdat)
- Textfiles (*.csv, *.txt)

Server:

- LASR

Social Media

- Twitter
- Facebook
- Google Analytics
- YouTube

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Loading Data into CAS

Available data sources with SAS/ACCESS to PC Files:

Data Source Summary for Linux Environment

| Data Source | Identifier | PROC IMPORT | PROC EXPORT |
|---|------------|-------------|-------------|
| Excel using XLSX file formats | XLSX | Yes | Yes |
| Excel using XLS file formats | XLS | Yes | Yes |
| dBase using DBF file formats | DBF | Yes | Yes |
| dBase file format with MEMO support | DBFMEMO | Yes | Yes |
| JMP using Version 7 or later JMP file formats | JMP | Yes | Yes |
| Paradox using DB file formats | DB | Yes | Yes |
| SPSS using SAV file formats | SAV | Yes | Yes |
| Stata using DTA file formats | DTA | Yes | Yes |
| Comma-separated file | CSV | Yes | Yes |
| Tab-separated file | TAB | Yes | Yes |
| Delimiter-separated file | DLM | Yes | Yes |

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Loading Data into CAS –General remarks

- Loading data into CAS does not mean the table will be loaded completely into memory
- CAS uses memory mapping techniques to use physical memory most effectively
- Data has not to be loaded upfront before opening a report
- Local and Server tables do not have to be registered before you can use them in SAS Visual Data Builder (*.sas7bdat, *.sashdat, *.csv)

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Loading Data from Local with VDB

Data sources that can be loaded interactively from local:

- Microsoft Excel : you must have a license for SAS/ACCESS to PC Files
- Text Files (either CSV or TAB delimited files)
- SAS Data Sets (either *.sas7bdat or *.sashdat)
- Data from Clipboard

Loading Data from Local with VDB

[illegible]

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Loading Data from Server with VDB

Data sources that can be loaded interactively from Server:

- LASR: you must have detailed connection and authorization info but you do not need a
- Database table: you must have a SAS/ACCESS license for the corresponding database and the database client must have been installed and configured

Note: SAS/ACCESS currently does not allow to write back to the database

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Loading Table from Oracle

Open Data Source

All Recent **Import**

Search

▼ Local

- Microsoft Exc...
- Text Files
- SAS Data Set
- From Clipbo...

▼ Server

- LASR
- Oracle**
- Teradata
- Hadoop
- PostgreSQL

► Social Media

Import Oracle Tables

Search

| <input type="checkbox"/> | Input Table Name | Output Table Name |
|--------------------------|------------------|-------------------|
| <input type="checkbox"/> | COUNTRIES | COUNTRIES |
| <input type="checkbox"/> | DEPARTMENTS | DEPARTMENTS |
| <input type="checkbox"/> | EMP_DETAILS_VIEW | EMP_DETAILS_VIEW |
| <input type="checkbox"/> | EMPLOYEES | EMPLOYEES |
| <input type="checkbox"/> | JOB_HISTORY | JOB_HISTORY |
| <input type="checkbox"/> | JOBS | JOBS |
| <input type="checkbox"/> | LOCATIONS | LOCATIONS |
| <input type="checkbox"/> | REGIONS | REGIONS |

Connection Information

Specify the Oracle connection information.

User ID: *

SAS

Password:

.....

Schema:

HR

Path: *

//m1494485.unx.sas.com:1521/o

Connect Cancel

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Loading LASR Table with VDB

- To load LASR tables interactively you have to provide detailed connection information for the source system
- After connecting successfully you will see a list of loaded LASR tables in the specified library
- Advantages:
 - No SAS/ACCESS engine required
 - Existing data preparation routines can be used in transition phase

Connection Information

Specify the LASR connection information.

User ID:

Password:

Server: *

Port: *

Tag:

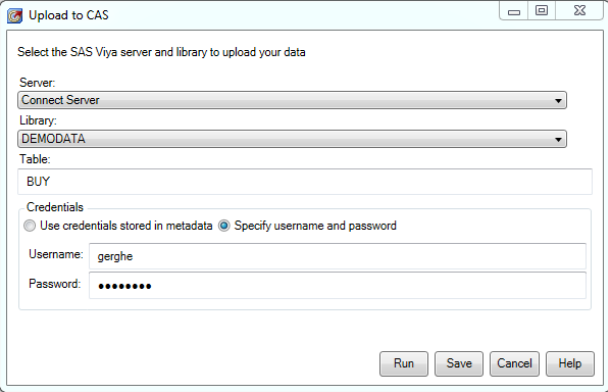
Metadata libref:

Signer:

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Loading Data with SAS Enterprise Guide

- The latest version of Enterprise Guide comes with an Upload To CAS task
- The task makes use of the SAS/CONNECT bridge



The screenshot shows the 'Upload to CAS' dialog box. It has a title bar with standard window controls. The main area contains the following fields and options:

- Server:** A dropdown menu with 'Connect Server' selected.
- Library:** A dropdown menu with 'DEMODATA' selected.
- Table:** A text input field containing 'BUY'.
- Credentials:** Two radio buttons. The first is 'Use credentials stored in metadata' (unselected). The second is 'Specify username and password' (selected).
- Username:** A text input field containing 'gerghe'.
- Password:** A text input field with masked characters (dots).

At the bottom right, there are four buttons: 'Run', 'Save', 'Cancel', and 'Help'.

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Data Management with VDB

- Data Management in SAS Visual Data Builder is CAS action oriented, meaning every data management action will be executed in-memory
- You can save a series of actions in a plan with undo/redo capability
- There is no scheduling capability in VA 8.1, this is planned for VA 8.2
- There is no way to view or edit the generated code
- Visual Data Builder 8.1 is targeted to accommodate self-service data preparation capabilities, it does not replace an ETL solution

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In-memory Data Management Actions

- In-Memory Join
 - Multiple join keys
 - Color Coding
- Transpose Table
- Append Table

In-memory Column Transformations

- Split columns
- Trim & Compress
- Change Case
- Filter
- Sort

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Demo Loading and Modifying Data



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Key Takeaways

- Simplified authorization process
- Unified HTML5 interface
- In-memory data preparation