2023

HxGN EAM CUSTOM GRIDS WITH EAM SYNC

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HxGN EAM Data Solution for MS SQL and Tableau

Purpose

The custom developed data solution uses HxGN EAM grids and WebConnector license to extract data from HxGN EAM to MS SQL database. The database in turn is connected to a BI tool, in this case Tableau.

The advantage of using an external database, such as MS SQL is that it allows for processing and storage of data efficiently, using database processes and procedures instead of delivering the raw data directly into the BI tool and relying on its processing capabilities, which are inherently more limited than that of a database.

Technology

On the HxGN EAM side the data is retrieved using a custom created grid, following the standard HxGN EAM procedures.

The communication between HxGN EAM and the external database (MS SQL) is achieved through a single WebConnector license, using webcalls to call the data from the grid.

A custom .NET EAM Sync application processes the data from the grid and creates the table structure inside MS SQL that houses the HxGN EAM data. The EAM Sync application uses C#.

The EAM sync can be scheduled to run at predefined intervals using Windows Scheduler or executed manually as needed.

An error log for the transaction is installed on the MS SQL server side as part of the EAM Sync solution.

➢ A single MS SQL database can be used to contain data from multiple grids.
➢ The EAM Sync custom app can be used to process data from multiple grids.
➢ The data for each additional grid needs to be recorded in the source code of the EAM Sync app.
➢ A single WebConnector license can be used for multiple grids.

Architecture

Figure 1 outlines the general architecture of the solution.

Figure 1. General Solution Design
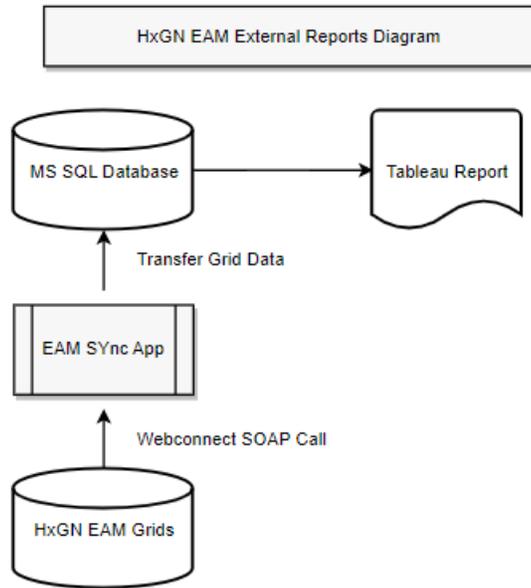
WebConnector License and User in HxGN EAM

It is necessary to perform a one time set up of the WebConnector license CDKEY and create a user for the license. Technically it is possible to assign the license to an existing user, but it is recommended that a new, clearly identified user is created.

1. Activate the WebConnector license inside HxGN by providing a value for the **7IWCDKEY** install parameter. The appropriate value is generated by HxGN and will be made available by the sales rep. If additional WebConnector licenses are purchased, a new 7IWCDKEY will be issued.
2. Create a WebConnect user inside HxGN. Administration|Security|Users. The user name could be generic and easily recognizable, e.g. WEBCONNECT

Ensure the user is a member of the R5 group and has access to the Organizations that will be included in the data analysis project.

Create Reports Database

Create a database on a server. MS SQL is usually preferred for cost and efficiency reasons, but technically the database used for the reports can be of any major database type.

EAM Sync Custom App

The EAM Sync custom app handled the communication and data upload between HxGN EAM and the reports database (MS SQL). It is a .NET 4.8 application. The mapping inside the app between the HxGN EAM grid(s) and the MS SQL database is created using C#.

EAM sync creates the necessary linkage between each grid field and a corresponding database table and field. Note: The reports database needs to have a table that corresponds to each grid from HxGN EAM. E.g. for grid TUWOL1, there is a table with the same field names and data type as the fields from the

grid. If a new grid is added, a new table needs to be created inside the MS SQL database following the same standards – same field name and data type for each field of the new grid.

The EAM Sync application is typically delivered as a complied application to the customer. In order to add new grids to the reports database or revise existing grids (e.g. adding new fields), the source code of EAM Sync will need to be modified accordingly.

EAM Sync Custom App Installation

The EAM Sync app is currently installed at **C:\Program Files (x86)\.....** on the MS SQL server. EAM Sync is a .NET 4.8 application. Modifications to the existing app, including creating classes for new grids and modifications to the existing grids are written in C#.

Adding New Grids To Reports

Adding new grids to the custom reports solution requires the following steps:

1. Create and activate new grid inside HxGN EAM and assign to the R5 user group.
2. Create a new table inside the MS SQL database. It is recommended that the table name contains a reference to the grid name for easier identification. The newly created table should contain all fields from the grid that will be included in the reports. The data types and length of the table fields must match the ones from the grid. For easier identification it is recommended that the field names in the table match the grid aliases.
3. Modify the custom EAM Sync application, adding a new Class for the grid and defining the fields parameters.

Adding New Grids in HxGN EAM

Create a custom grid inside HxGN EAM following the standard HxGN EAM instructions. The only grid requirements are as follows:

- List view
- Active grid
- Assign grid to the same user group as the WebConnector user, typically R5
- It is recommended that the grid does not have built in system parameters, such as :MP5USER, :M5ORG, etc. Regular database parameters are ok.

There is no limit to how many grids can be created. All grids can be added to an external database using the same WebConnector license.

Grids can contain any number of custom created fields, following the standard HxGN EAM nomenclature.

Adding New Grids – Modifying the MS SQL Database

1. Using SQL Management Studio, create a new table for the existing reports database.
2. It is recommended that the new table name contains a reference to the corresponding grid from HxGN EAM.
3. Define the new table fields. All fields from the HxGN EAM grid that will be included in the report will need to be added as table columns with the appropriate data type as the grid fields.

Note: It is recommended that that table fields names match the aliases of the grid fields for reference.

4. It is possible to add special fields to the table that do not exist in the HxGN EAM grid, such as calculated fields, etc. It is possible to modify the format and behavior of the table fields using the SQL Management Studio, according to the reporting needs.

Adding New Grids – Modifying EAM Sync

1. Open source code project with Visual Studio.
2. Add new interface class in **FromEAM** folder.
3. In **App.config** add new application setting with grid name.
4. Update **Program.cs** file to execute new grid interface

Note: The Class object for the existing grid can be used as a guideline about the level of detail and structure of the new class. All fields from the grid will need to be described and processed in the new Class.