OLIASOFT

Oliasoft WellDesign (OWD)

Engineers Data Model (EDM) Migration – Tool and Procedure

01.12.2021

1.   Introduction

For companies and organizations migrating from the Engineers Data Model[1] (EDM™) to Oliasoft WellDesign (OWD), Oliasoft have a tool and a procedure to import pertinent data from EDM into OWD. The migrated data includes, but are not limited to:

- Hierarchy (country / field / site / well / wellbore)
- Well configuration (drilling unit and onshore/offshore)
- Map related settings (datums and map systems)
- Site and well locations
- Survey points trajectories (md / inc / azi)
- Survey legs with error models (IPM files)
- Kick off wells

2.   The Migration process

The migration process typically consists of three steps:

1. EDM data "dump" into an XML file (basically a mirror of the database)
2. EDM XML file is processed and quality assured by Oliasoft IT specialists
3. Recreating the EDM data in OWD using the processed files

Oliasoft will typically assist the customer making sure the data is correct and address any issues that may arise. Typical issues arising are:

- EDM data deviates from expectations (i.e. official documentation, written reports)
- The data export includes data types currently unsupported by OWD
- Varying EDM versions or specific data that need to be handled

3.   The Oliasoft EDM Importer Tool

The Oliasoft EDM importer tool reads EDM data from the XML file and recreates relevant data objects needed for import into OWD. EDM data is typically stored using a relational data model. This means that the data needs relational queries and links to be useful. For products using EDM this logic lives within the software (Compass, StressCheck etc.).

OWD stores data using an object model. A trajectory inside EDM is stored as a "wellbore header" row which needs to be joined with specific survey points and datum/well references to be able to create a "wellbore object" which has everything in one place. The Oliasoft EDM importer tool handle the data transformation and stores everything as OWD objects, which in turn are used by our applications and APIs.

---

[1] The underlying platform for the Engineer's Desktop, the Engineer's Data Model™ (EDM) database, is Landmark's Drilling, Completions, Production, and Economics integration platform (www.halliburton.com)

Currently Oliasoft typically access the following tables for recreating the data objects (as they are named in the XML dump file):

- CD_PROJECT
- CD_SCENARIO
- CD_DATUM
- CD_SITE
- CD_WELL
- CD_WELL_ALL
- CD_WELLBORE
- CD_SURVEY_HEADER
- CD_SURVEY_TOOL
- CD_DEFINITIVE_SURVEY_HEADER
- CD_DEFINITIVE_SURVEY_STATION
- CD_SURVEY_STATION
- DP_TOOL_TERM

The procedure for recreating data in OWD broadly consist of the following steps:

1. The IPM files effectively stored inside CD_SURVEY_TOOL and DP_TOOL_TERM are recreated.

2. The next step is to iterate through all the wells inside CD_WELL_ALL, and assign the proper datums from CD_DATUM.

3. With datums assigned, we iterate through each project in CD_PROJECT (including datum info), each site in CD_SITE, each well in CD_WELL and each wellbore in CD_WELLBORE.

4. With each wellbore, the goal is to preserve all the data, and ascertaining which wellbore is the "primary". The data found in the survey tables, including definitive surveys, are used to achieve this.

Some wellbores may have a list (or lists) of measured surveys / survey legs with related error model information. There may also be multiple versions for different project phases (PLANNED and ACTUAL). The procedure targets carrying all the EDM data "as is", unchanged, and recreate them in the OWD environment.

5. For a completed (actual/drilled) well, there are typically a range of survey legs, which constitute the actual drilled well. The EDM migration tool detects the actual drilled well by looking at all the survey leg ranges for a given wellbore and assumes by default that the one with the most survey legs with error model information is the "primary" well.

6. When the specific survey legs are found, they are named "Recombined" with their status "as drilled" (which is labelled "ACTUAL" in OWD).

7. In case the procedure cannot determine a "Recombined" well, the data is stored as it is in EDM. This means there may be multiple "designs" in OWD, with multiple trajectories and/or trajectory ranges. This secures that data is not missing, whilst these multiple trajectories can be handled manually at a later stage.

8. Finally, the kick-off wells and their relationships are coupled and transferred. As OWD supports both the parent and kick off well inside one design (for visualization), all parents to a given wellbore trajectory are imported.

After the import, the hierarchy with all the designs is available in OWD, similar to the screenshot below (field and well names blurred with intention):
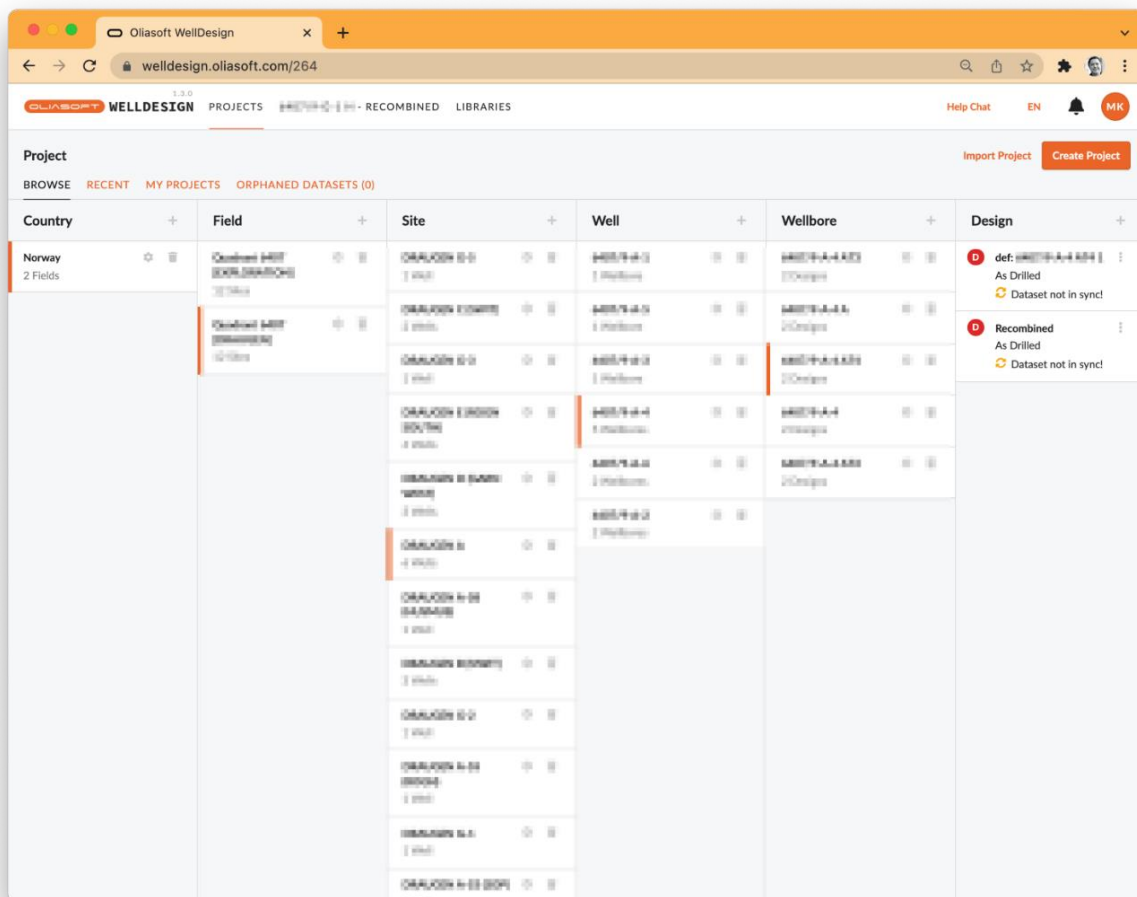
The following screenshot shows a kick-off well being kicked off from a definitive survey visualized in OWD:
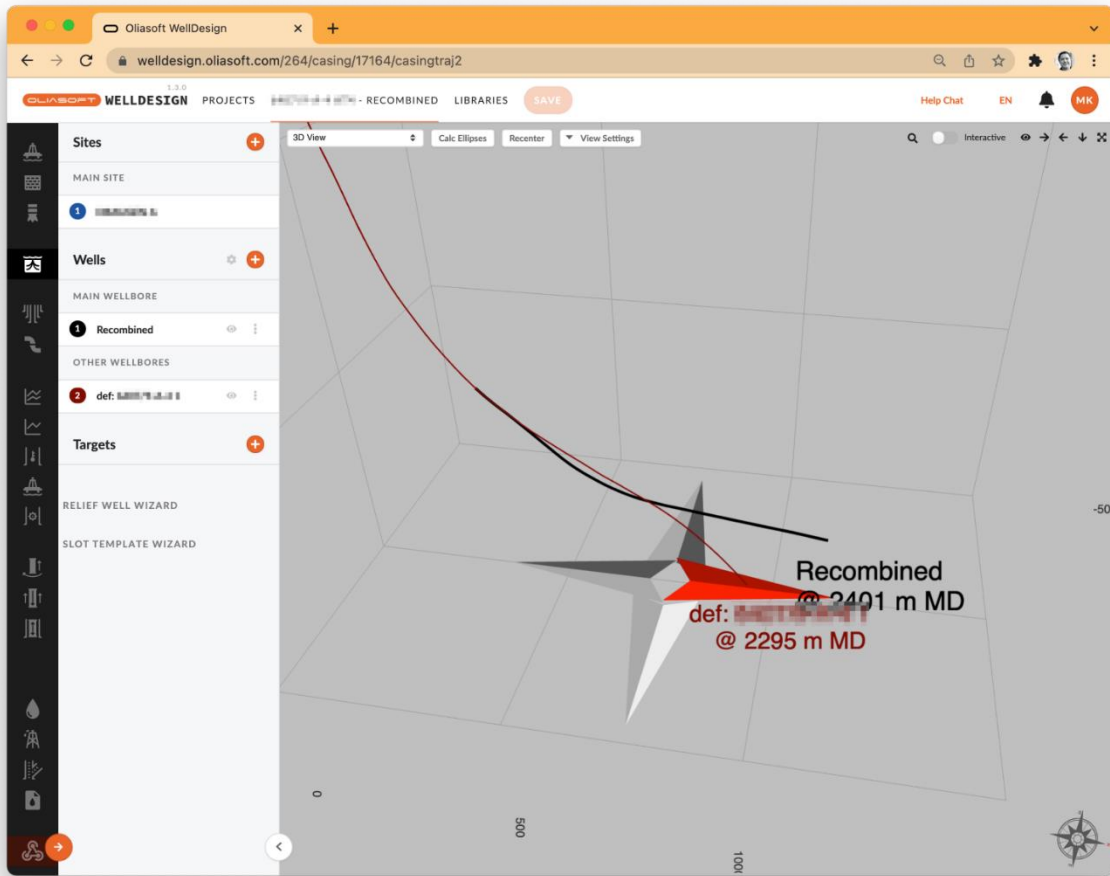
The following screenshot shows survey leg error model information being combined into a "Recombined" type of wellbore object in OWD: