

Knovel®

EXPLORATION & PRODUCTION

Solution Story: Oil & Gas Drilling Company

Programming resources in Knovel help engineers quickly design solutions to major data-processing bottlenecks



Summary

Calibration of sensitive equipment such as progressive capacity pumps can become a bottleneck due to the volume of the data to be processed. However, it is also possible to automate a considerable part of the process. Knovel provides considerable resources to help program solutions that save work hours and money.

Information from Knovel helped to resolve a major bottleneck in data processing.



Challenge

Progressive cavity pumps of every capacity require careful calibration. Every year, data for each working pump must be entered and computed to generate the certified calibration curve. This requires roughly 3 hours of an engineer's time—not significant in itself, but it can soon add up.

The client is a multinational corporation involved in gas drilling and production and equipment manufacturing.

With over 400 progressive cavity pumps to be tested every year, the corporation was investing over 1,200 hours in data entry and computation related to calibration. As part of a larger project to improve the delivery and maintenance of pumps, one design engineer wanted to see if this task could be streamlined.

Solution

The design engineer wanted to write a program to automate the handling of the calibration data and use Matlab to create a graphic user interface (GUI) for end users. The program should receive testing data and automatically generate the needed certified calibration curve as a PDF.

Knovel easily provided the information and data necessary, with several resources (Figure 1):

- Software communication standards for this type of automation
- Examples and code sections that could be directly copy-pasted into the programming environment
- Documentation on GUI design and development, including templates
- Matlab manuals that helped in creating the GUI

Business Impact

Knovel made it much easier for the engineer to write the program and design the GUI. They could quickly find and compare code examples to identify the optimal approach and easily navigate the Matlab manuals.

The program received the testing data (pressure, flow, motor voltage and amperage) and processes it, automatically generating the certified calibration curve and exporting it together with the pump data as a PDF.

The task time was cut from 3 hours per pump to around 10 minutes, meaning an incredible saving of over 1,100 work hours per year. This equates to a saving of over USD 110K. Thanks to information from Knovel, the engineer could quickly create this streamlined solution to a major bottleneck in data processing.

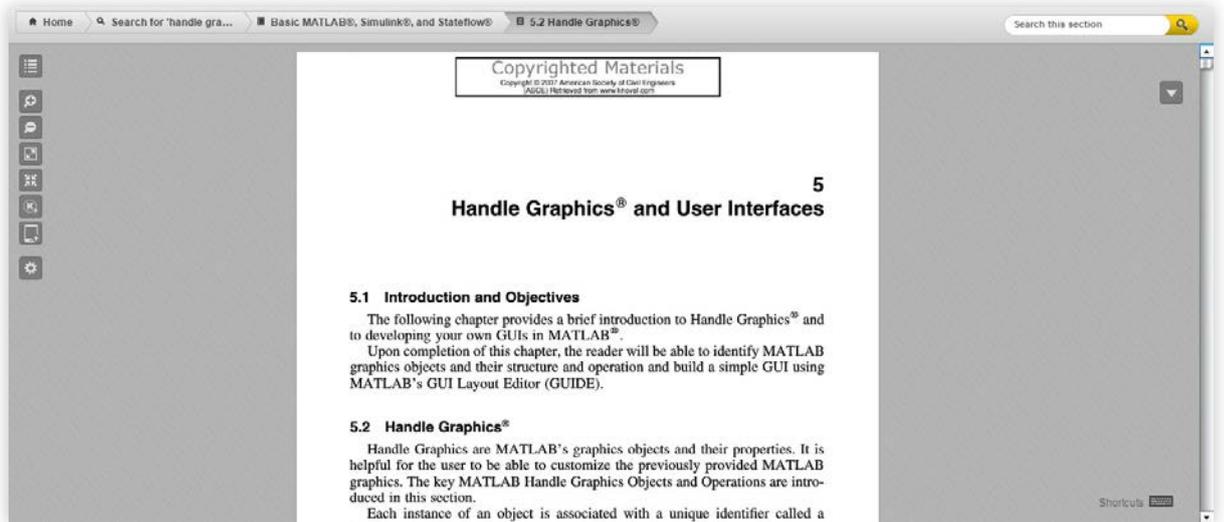
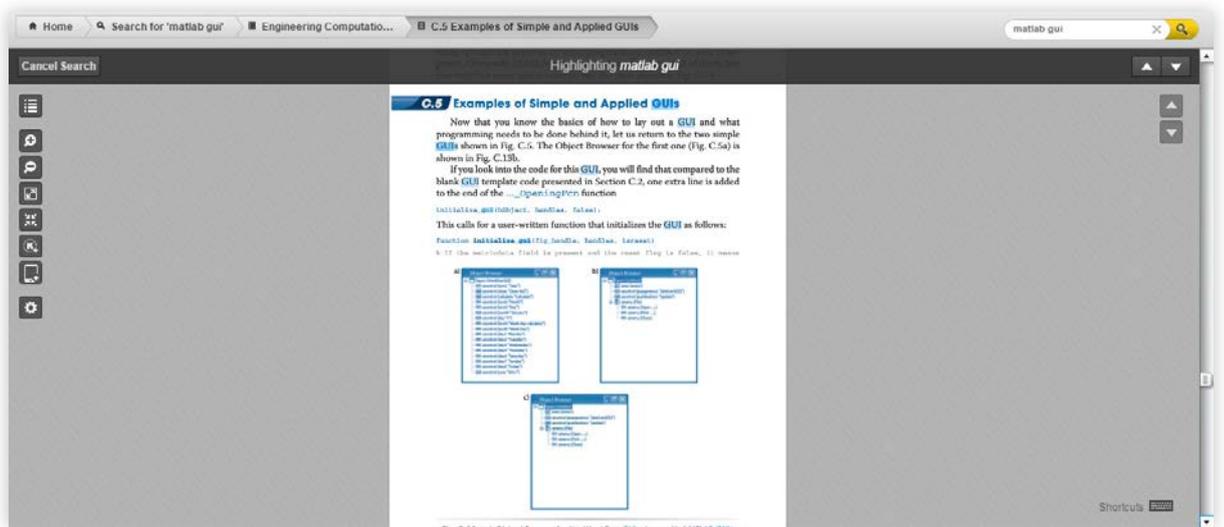
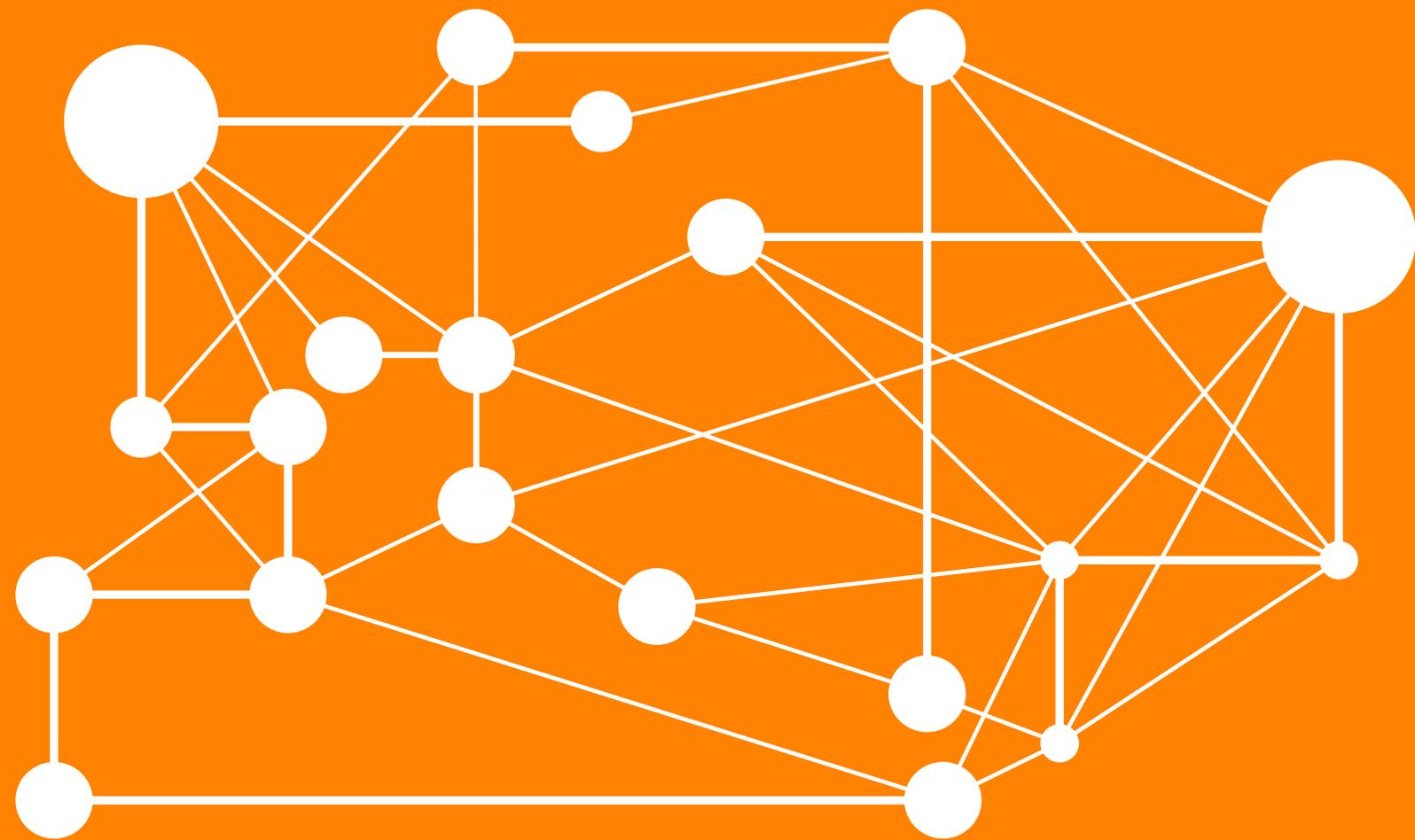


Figure 1. Some of the resources available in Knovel for programming and interface design



Knovel

Knovel helps oil & gas companies minimize risk while maximizing output and efficiency by providing engineers access to technical reference materials and interactive tools for developing and managing projects with greater efficiency and certainty.

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