



# Devo Machine Learning Workbench

Operationalize ML and Data Science at Scale

## The Current State: Operational roadblocks prevent data science from achieving its full potential

Data science is a critical new tool in the arsenal of the modern enterprise. Data science teams are increasingly partnering with operations and security teams to apply data science techniques to solve business problems. For example, data scientists might be called upon to implement a custom fraud detection model, or model customer revenue, retention and churn as a consequence of service downtime. The data science process is a multi-step one, consisting of: exploring datasets, creating and training models, and deploying those models into production in order to turn operational data into organizational intelligence and action.

Organizational realities and operational roadblocks can disrupt the data science process. Data sets may reside on different systems or may be managed by disparate teams, making it cumbersome to collect and join them together. Often the data needs to be transformed, meaning time and CPU cycles are spent on data preparation, not analytics. Finally, IT needs flexible tools to enable the resulting models to be deployed reliably at production scale. The Devo Data Operations Platform, coupled with the Devo Machine Learning Workbench, helps data scientists develop and put models into production, ultimately turning data into action.

## A platform tailor-made for machine learning at scale

The Devo Data Operations Platform solves up-front data management issues so data scientists can get to meaningful work faster in order to deliver real results. Devo stores all data in a single place. Varying data formats are not an issue since data is parsed at query time and parsers are easy to update as data schemas evolve. Devo's highly scalable platform enables data scientists to rapidly explore historical and real-time streaming data in a single pane of glass with consistent format while reducing time between iterations. These capabilities are crucial to data scientists chartered with building algorithms from historical data to explain the present or predict the future.

## A workbench that mirrors how data scientists work

The Machine Learning Workbench is designed to support a streamlined data science workflow. The ML Workbench is flexible, with core capabilities designed to enable experts and operational analysts alike to answer questions the business is asking.



### Data Explorer

The Data Explorer is a point-and-click graphical interface used to explore statistical distributions, sample statistics and various types of correlations. The Data Explorer allows operational analysts and data science experts to quickly look at the shape of any data set. Custom LINQ queries and interactive plots enable users to conduct data exploration in the way that they prefer to work.

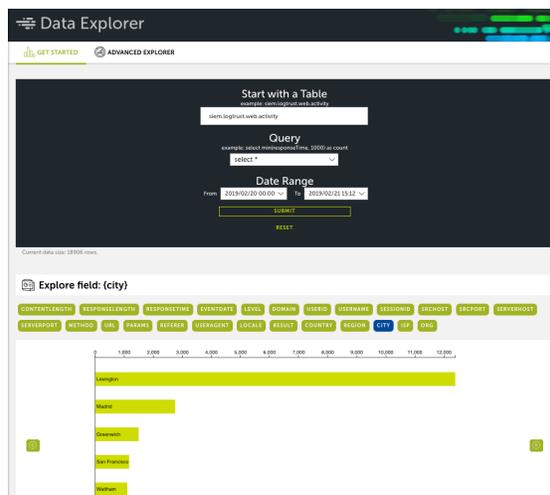


Figure 1: Data Explorer

### Quick Modeler

The Quick Modeler allows operational analysts and DS experts to apply common ML techniques to build a model on their data in Devo. Built-in models include Multivariate Linear Regression, which enables you to predict a numeric value using other numeric input values, and Clustering, which enables you to group similar data points into N groups (clusters). Once the model is trained it can be applied to new unseen data in real time. All of Devo's core capabilities, such as creating dashboards, alerting and exploring the data, can be used with this model applied.

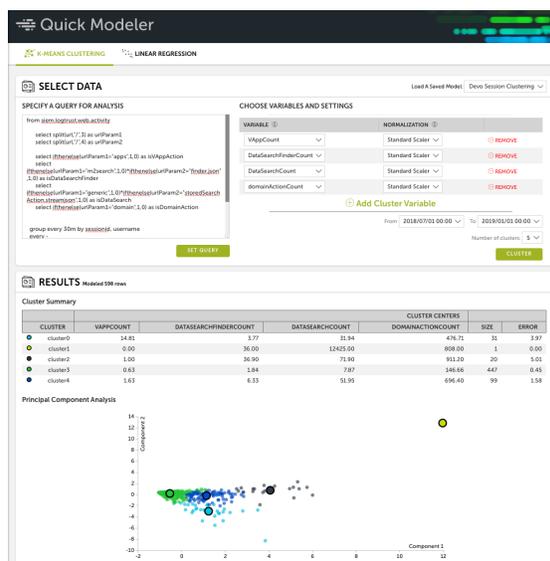


Figure 2: Quick Modeler

### Data Science Connector

The Data Science Connector is an SDK available for a variety of programming languages that lets data scientists quickly connect their language of choice (e.g. Python, R, others) to Devo. The Data Science Connector includes a number of functions that data scientists will find convenient - sampling (random subsets of data), population sampling (e.g. all data for 10% of users), results delivered as Data Frames, and more. The SDK includes options for uploading data back to Devo to unlock other use cases - for example, storing model output results and turning data into action.

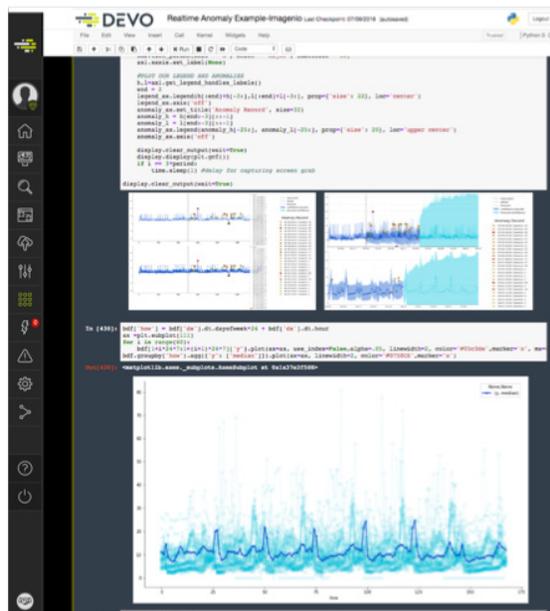


Figure 3: DS Connector

### Model Server

The Model Server allows data scientists to deploy their own models on Devo. Model Server models are any Docker container that receives records, applies compute, and writes an output - meaning any programming language, library or technique that can be packaged as a Docker container is supported. This enables the data scientist to deploy any business logic at scale - from trained ML models developed in Tensorflow, Keras, MxNet, etc. to simple “if-then-else” rules or invocation of an external API. The ability for data scientists to deploy custom models against Devo means faster time to value - models can be updated and refined, evaluated, etc., faster than ever before.



Figure 4: Model Server

## Get started with the Devo Machine Learning Workbench today

Get from pilot to production fast. What good are models if you can't run them at enterprise scale in real-time? The Devo Machine Learning Workbench is included as a standard capability within the Devo Operations Platform. Try it today and see how your entire data science team can get to impactful and transformational work faster.

### ABOUT DEVO

Devo Technology is the data engine behind today's digitally-driven enterprises, helping organizations maximize the economic and operational value of their machine data. The Devo Data Operations Platform delivers real-time analytics on streaming and historical data to turn machine data into actions that help enterprises achieve sustained performance and growth. By collecting, enhancing and analyzing machine data, Devo provides business-driving insights for IT, security, and business teams at the world's largest organizations. For more information visit [www.devo.com](http://www.devo.com)