CADEON TRAINING

HOW IT WORKS

All courses are offered in-house (at the Cadeon office in Calgary), on-site (at the client’s location), or remote (through video conferencing).

An instructor will lead a hands-on classroom training course for a maximum of 14 students. The environment will be informal and engaged, structured to encourage discussion with ample opportunity for questions. Students have a chance to strategize and get feedback on their own analytical business goals within the context of the course content.

In-house courses are regularly scheduled by request at the Cadeon office and publicly offered to anyone from any organization. We will typically run a course if at least 4 people (does not need to be from the same organization) are confirmed. All attendees are required to bring a laptop.

While we are based in Calgary, our instructors can travel to any location to deliver classroom on-site training. The client is responsible for providing a suitable training facility with computers, as well as covering travel costs if the location is outside Calgary. If remote training is requested, an additional cost may be charged to cover the video conferencing and virtual machine hosting.

Most courses are designed using public oil & gas data and taught by experienced practitioners from the oil & gas industry. Further course customization is available at an additional cost.

<table>
<thead>
<tr>
<th>Course</th>
<th>Role</th>
<th>Duration</th>
<th>Price per Classroom (on-site/remote)</th>
<th>Price per Attendee (in-house)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction to Spotfire</td>
<td>Consumer/Analyst</td>
<td>1/2 Day</td>
<td>$3,000 USD</td>
<td>$500 USD</td>
</tr>
<tr>
<td>Spotfire Fundamentals</td>
<td>Analyst</td>
<td>2 Days</td>
<td>$10,000 USD</td>
<td>$1,600 USD</td>
</tr>
<tr>
<td>Spotfire Administration</td>
<td>Administrator</td>
<td>1/2 Day</td>
<td>$3,000 USD</td>
<td>$500 USD</td>
</tr>
<tr>
<td>TIBCO Data Virtualization Fundamentals</td>
<td>Administrator</td>
<td>2 Days</td>
<td>$10,000 USD</td>
<td>$1,600 USD</td>
</tr>
<tr>
<td>TIBCO Data Virtualization Intermediate</td>
<td>Administrator</td>
<td>3 Days</td>
<td>$15,000 USD</td>
<td>$2,400 USD</td>
</tr>
</tbody>
</table>
ROLE DESCRIPTIONS

Analyst: Create visualizations for ad-hoc analysis, or create reports and dashboards for deployment to the Spotfire Server for consumption.

Consumer: View and interact with Spotfire analyses created by Analysts.

Administrator: Typically a resource from the IT department that administers the Spotfire Server and Data Virtualization (Advanced Data Services / TIBCO Data Virtualization) environments, including content, user security and data administration.

TRAINING COURSES

INTRODUCTION TO SPOTFIRE FOR OIL AND GAS

Pre-requisites: None

Length: ½ Day

This course is designed for someone with limited or no exposure to Spotfire or other data analytics tools. Your role requires working with data in spreadsheets and making graphs in Excel, but you want to explore other options for visualizing information. Those who have modified or interacted with other people’s Spotfire reports and want to gain the skills to build their own projects will find this course especially helpful. Typical job titles include engineer, geologist and business analyst.

Topics:

- Overview of the Spotfire user interface
- Connecting to & loading data from multiple data sources using add rows and columns
- Creating and modifying common visualizations (bar charts, line charts, scatterplots, tables, cross tables)
- Introduction to map charts
- Transformations, custom expressions and calculated columns
- Configuring interactivity (filters and markings)
SPOTFIRE FUNDAMENTALS FOR OIL AND GAS

Pre-requisites: None

Length: 2 Days

This course is designed for someone with previous experience using Spotfire to create visualizations. It includes all the topics covered in the Introduction to Spotfire for Oil and Gas course and builds on those concepts. You want to gain a comprehensive overview of Spotfire’s capabilities, learn new tips and tricks, and familiarize yourself with best practices. Whether you are new to Spotfire or have been using it for years, this course is intended to rebuild your knowledge base from the ground up and turn you into a highly proficient power user—no coding required! Typical job titles include engineer, geologist and business analyst.

Day 1:
- Overview of the Spotfire user interface
- Connecting to & loading data from multiple data sources using add rows and columns
- Creating and modifying common visualizations (bar charts, line charts, scatterplots, tables, cross tables)
- Introduction to map charts
- Transformations, custom expressions and calculated columns
- Configuring interactivity (filters, markings and subsets)
- Bookmarks
- Tagging
- Saving & exporting to PDF & PowerPoint

Day 2:
- Review of Day 1 concepts
- Binning and Hierarchy
- Advanced calculations (OVER function, DenseRank)
- Feature, TMS, WMS, and image layers in map charts
- Working with multiple data tables (how to configure markings and filtering across different tables)
- Data relations, column matching, plotting data from two different tables on one graph
- Overview of advanced visualizations (heat map, treemap, box plots, parallel coordinate plot, KPI chart, waterfall chart, summary table, graphical table)
- Introduction to text areas for creating dashboards
- Plotting directional surveys using 3D scatterplots
- Creating a human body injury visualization using layers in map charts
SPOTFIRE ADMINISTRATION

Pre-requisites: Basic understanding of server administration

Length: ½ Day

This course is designed for an IT professional whose role requires managing Spotfire users and groups. You are the Spotfire Administrator and you need to perform tasks such as administering the Spotfire library, creating Information Links with the Information Designer, enhancing security, managing licenses and Spotfire users across the organization.

Topics:

- Spotfire server architecture
- Server installation
- Node manager
- Web Player
- Automation Services
- Introduction to licenses
- Deployments
- Library administration
- Groups, roles and responsibilities
- Exploring the Information Designer
- Creating Information Models
- Accessing Information Links
- Permissions
- Recommendations and best practices
TIBCO DATA VIRTUALIZATION FUNDAMENTALS
FOR OIL AND GAS

Pre-requisites: None

Length: 2 Days

This course is designed for someone with no prior experience with TIBCO Data Virtualization (TDV). In fact, you may not even know what data virtualization is or how it can complement your existing data management strategy. The course content focuses on use cases in the oil and gas industry and how to connect your virtualized data sources with Spotfire. You do not need to be an IT professional as the course involves minimal coding. Anyone with an interest in how TDV can speed up the way they consume large amounts of data from disparate sources would find this course very eye-opening.

Day 1:
- Overview of Data Virtualization
- Best practices for the hierarchy of folders
- Using TDV Studio
- Data source connections and the power of introspection
- Using Data Discovery to find relationships between data sources
- Building views to create an effective Data Virtualization source structure
- Handling data type and formatting issues in the Formatting Layer
- Performing joins and unions in the Logical Layer

Day 2:
- Review of Day 1 concepts
- Publishing as a database to Spotfire
- Connecting to TDV in Spotfire directly and using the Information Designer
- Overview of Caching & Troubleshooting
- Using the Query Engine to optimize query performance
- Using Data Lineage to track data passing between views
- Additional data source connectors
- Configuring Security in TDV Manager
- Overview of TIBCO Business Directory
  - A Data Catalog for business users to find data in TDV
TIBCO DATA VIRTUALIZATION INTERMEDIATE

Pre-requisites: IT/Developer/Data Engineer background, basic SQL knowledge, some TDV experience

Length: 2 Days

This course is designed for an IT professional with a few years of experience using TIBCO Data Virtualization (TDV). The first half-day is a review of basic TDV concepts covered in Cadeon TDV Fundamentals which is required to build the data set that is used throughout the course. You will explore a variety of capabilities within TDV with a mixture between hands-on labs and PowerPoint lectures.

Unlike Cadeon’s other courses, this course is not targeted to oil & gas, and is generally applicable to all industries.

Day 1:
- Overview of Data Virtualization
- Best practices for the hierarchy of folders
- Using TDV Studio
- Data source connections and the power of introspection
- Building views to create an effective Data Virtualization source structure
- Publishing
- Contract First Web Services

Day 2:
- SQL Script Introduction
- SQL Script Cursors and Pipes
- SQL Script Loops and Tests
- SQL Script Exceptions
- Parameterized Queries
- Packaged Queries
- Procedures - Packaged Queries

Day 3:
- XML Transformations
- Using the Query Engine to optimize query performance
- Configuring Security in TDV Manager
- Caching