

# *EspressoDashboard*

## **Technical Overview**

**Technical Overview,  
Deployment/Integration Options,  
and Detail Feature Specifications  
for EspressoDashboard**



Quadbase Systems Inc.

# Contents

<b>I. INTRODUCTION.....</b>	<b>4</b>
<b>II. KEY DASHBOARD FEATURES.....</b>	<b>4</b>
A. SHARED PARAMETERS .....	4
B. UNLIMITED DRILL-DOWN .....	5
C. ELEMENT LINKING.....	6
D. FOLDERS.....	7
E. AUTOMATIC REFRESH .....	7
F. SLIDE SHOW .....	7
<b>III. DESIGNING CHARTS.....</b>	<b>7</b>
A. THE ORGANIZER INTERFACE .....	7
B. CHART DESIGNER .....	8
1. Chart Types.....	8
2. Customizable Chart Attributes .....	12
3. Statistical & Analysis Features .....	13
C. ENTERPRISE DATA SOURCE INTEGRATION .....	14
1. Complete SQL Control .....	14
2. Extensive XML Support.....	15
3. Java Object/Array Data .....	15
4. SOAP Data Source .....	16
<b>IV. DESIGNING REPORTS.....</b>	<b>16</b>
A. REPORT TYPES.....	17
B. ACCESSING DATA .....	17
C. CREATING A QUERY .....	17
D. CREATE A REPORT .....	18
E. CREATING A CHART.....	19
<b>V. DESIGNING MAPS .....</b>	<b>21</b>
A. GOOGLE MAPS .....	21
1. Coordinate File .....	21
2. Creating Google Map .....	21
3. Tool Tip Report/Chart.....	21
4. Drill-down.....	23
B. SVG MAPS.....	24
1. Color Coding .....	24
2. Drill-down.....	25
<b>VI. PUTTING IT TOGETHER.....</b>	<b>26</b>
A. FLEXIBLE LAYOUTS .....	26
B. SHARED PARAMETERS .....	26
C. ADDING DRILL-DOWN.....	27
D. COMPLETE CUSTOMIZATION .....	28
<b>VII. GLOBAL DEPLOYMENT READY .....</b>	<b>29</b>
<b>VIII. TECHNOLOGY AND ARCHITECTURE .....</b>	<b>29</b>
A. ESPRESSDASHBOARD COMPONENTS .....	29
B. ESPRESSDASHBOARD ARCHITECTURE .....	30

C. ADMINISTRATION & SECURITY .....	31
<b>IX. CONCLUSION .....</b>	<b>32</b>

## I. Introduction

In this globally competitive business environment, an organization must be nimble and be able to adjust and fine-tune business strategies, business models and practices based on up-to-date information on the economy and business performance metrics. While economic data is readily available in the news media, monitoring status of business performance requires advanced Business Intelligence tools that can transform the corporate database silos into easy-to-understand metrics and reports. EspressoDashboard (EDAB) from Quadbase Systems is such a tool that empowers the executive or the business analyst to monitor “Key Performance Indicators” anytime, anywhere for decision support and analysis.

EDAB provides a simple, thin-client, drag-and-drop/point-and-click interface that allows non-technical users to easily create presentation quality KPI dashboards without using any IT or development resources. Finished dashboards are then immediately published to users across the enterprise.

## II. Key Dashboard Features

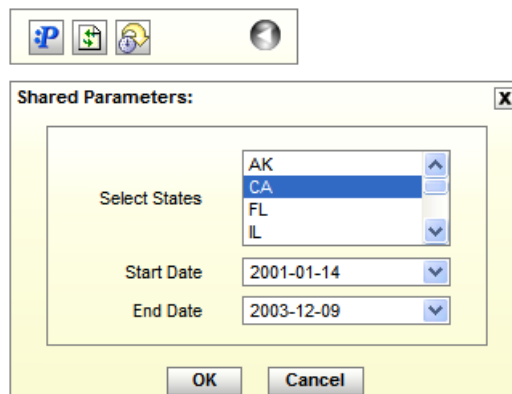
EDAB’s dashboards are dynamic and fully actionable. Unlike some competitors’ dashboards which are nothing more than some static charts and reports shown on a panel, EDAB’s dashboards are highly interactive. The key distinguishing features are as follows:

### A. Shared Parameters

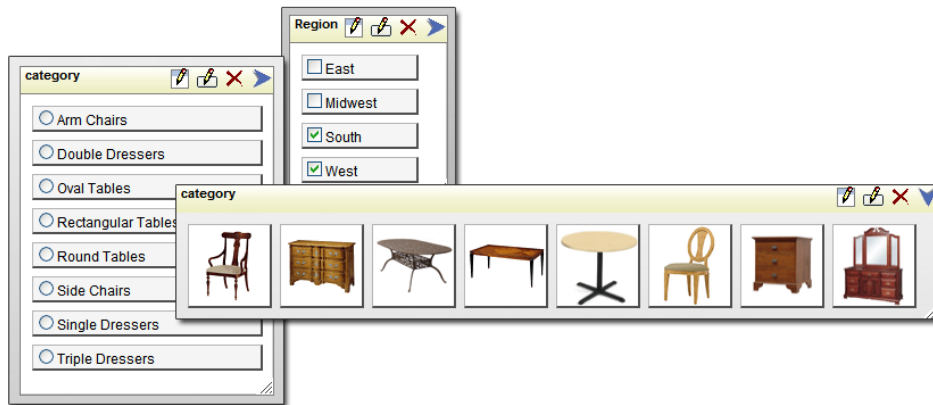
Reports and charts with parameters can be run individually with different parameter values on the dashboard. In addition, you can also set up shared parameters such that the user only needs to supply one set of values for the shared parameters to see the reports/charts/maps refreshed with filtered data on the dashboard.

There are several options for laying out shared parameters and for users to enter parameter values.

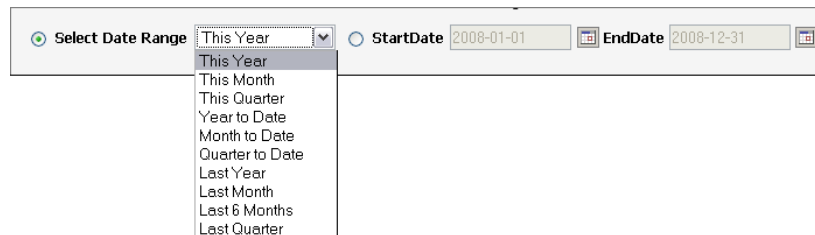
1. Simply type in the value for a parameter if the original parameter in the report/chart is unmapped, i.e. designed to be typed in at run-time.
2. If the parameter is mapped to a database, function, select statement or is custom defined, the parameter value(s) can be selected from a list box whether it’s single value or multi-value parameters.



3. If the parameter is mapped to a database, function, select statement or is custom defined, and the number of distinct values for the parameter is rather limited, those values can be listed as labels, images, radio buttons, or check boxes (if multi-valued).

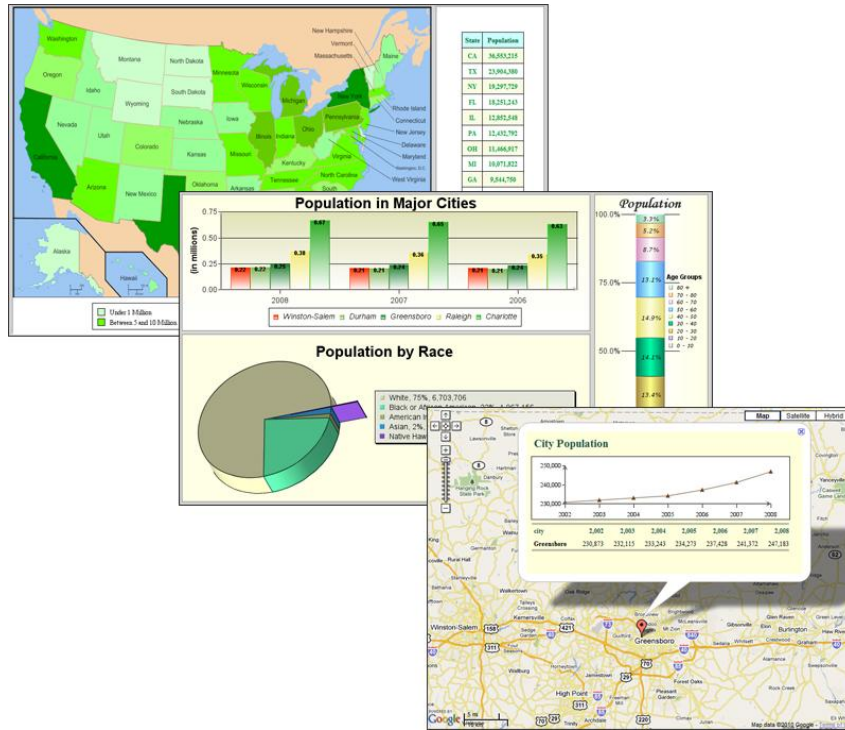


4. A range variable can be assigned to a pair of parameters for the same field. The most common application is for setting up date ranges, i.e. start and end dates. A set of pre-defined date range variables are included so that the user can pick values given by variables such as “today”, “yesterday”, “last week”, “last month,” month to date”, “last year”, “last quarter”, and so forth.



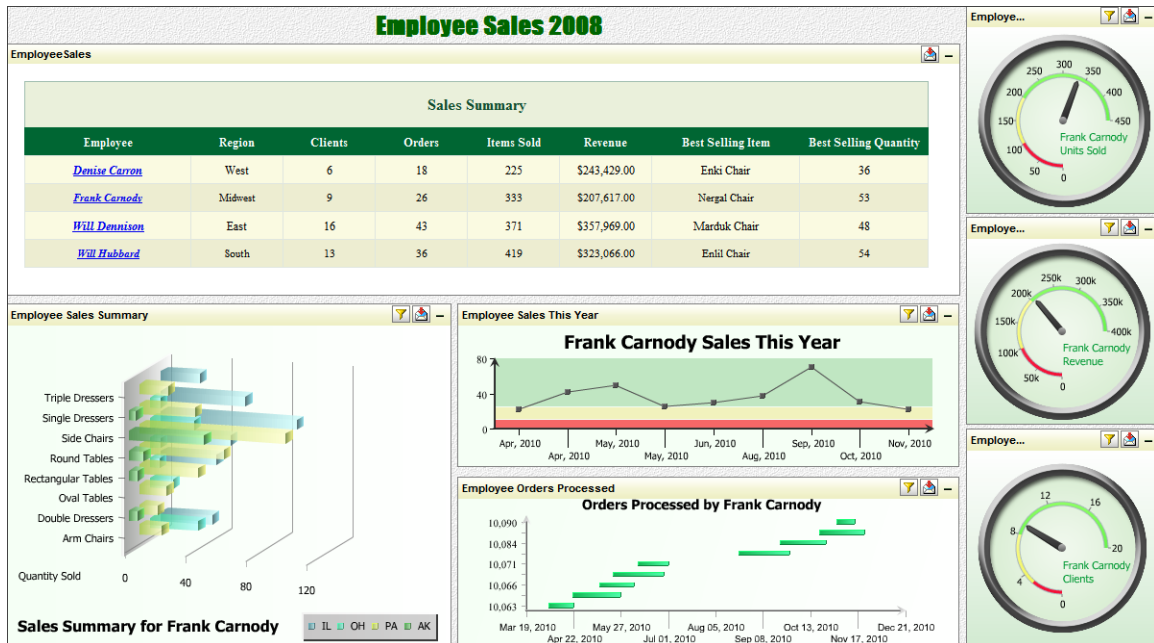
## B. Unlimited Drill-Down

Drill-down links can be set up on data points on charts, reports, and maps so that users can drill into detailed information about certain data points. Drill-down target can be a chart, report, map as well as a dashboard. As such, there is no limit to the number of drill-down levels.



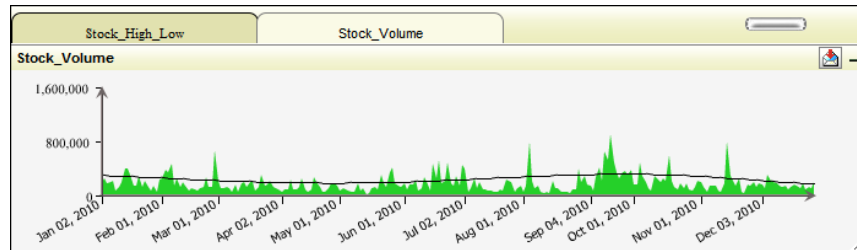
### C. Element Linking

In addition to setting up drill-downs to reports and charts, you can also set up links to other elements on the dashboard. So when the user clicks on a data point on a chart or report, one or more charts/reports on the dashboard will be refreshed with newly filtered data.



## D. Folders

EDAB dashboards can contain folders. Users can put a group of reports and charts in a folder on the dashboard. As such, more information can be packed in the dashboard. The reports and charts in the folder can be completely independent. They can also be used to display the same data in different views, e.g. different chart types and reports as different views into the same data.



## E. Automatic Refresh

You can set up a refresh interval such that the elements on the dashboard will be refreshed with new data periodically.

## F. Slide Show

EDAB allows you to select a group of dashboards and make a slide show for it. This is a great way to enhance management presentations of Key Performance Indicators.

# III. Designing Charts

In EDAB, chart design is handled in a client/server architecture but there is no client software to install. A web interface allows users to login to the server and access the chart designer, and data/query tools. Completed charts can be saved to the file system and published in dashboards.

## A. The Organizer Interface

The Organizer is the central file management interface for EDAB. Within the Organizer users can create charts, setup chart data sources and queries, and set user privileges and access rights (administrator only).

The Organizer also serves as a repository for charts, reports, maps and dashboards. All of the dashboards added to the Organizer can be run from the menu page portal, and from URL calls. However in EDAB, reports, charts, maps can only be published via dashboards. The Organizer allows users to create and modify charts without requiring any changes to the deployment environment.

The pure Java interface can run on virtually any platform, and can be run as a client-side application, or loaded remotely through a Web browser.

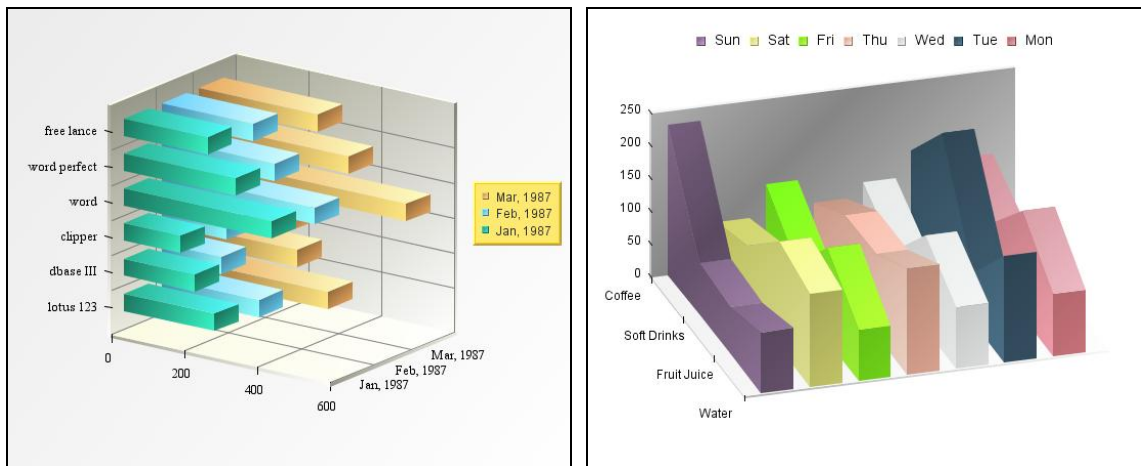
## B. Chart Designer

Launched from the Organizer, the Chart Designer makes it easy to develop and design charts. It is an easy-to-use graphical user interface that allows charts to be customized in a drag-and-drop style environment. It allows the user to access every feature in making a chart and yet offers a very short learning curve for new users.

### 1. Chart Types

EDAB supports over thirty different chart types in both two-dimensional and three-dimensional layouts. Charts allow users to display up to four dimensions of data in a single plot and even more using combination/composite chart options. Unlike many charting tools, EDAB's charting engine renders charts with true 3D allowing users to pan, zoom, rotate, and even adjust the shading and ambient light source effects for charts.

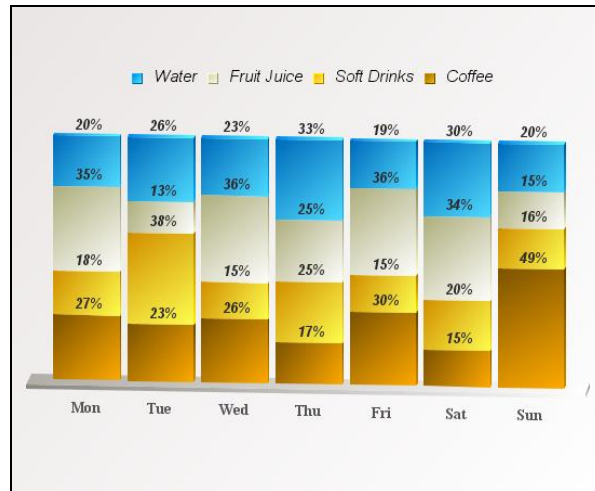
#### a. Column/Bar/Line/Area Charts



Basic chart layouts in EDAB consist of a discrete number of categories which are plotted on one axis and a numeric value which is plotted on the other. This layout is often shown in a columnar form as pictured above, but can also be rendered as bars, lines, and shaded areas. An additional dimension of data called a series can be added to these charts. A series will plot 2 or more values for each category.

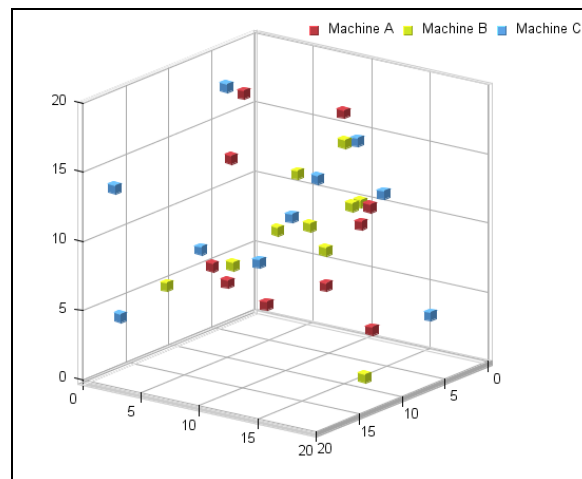


## b. Stack Charts



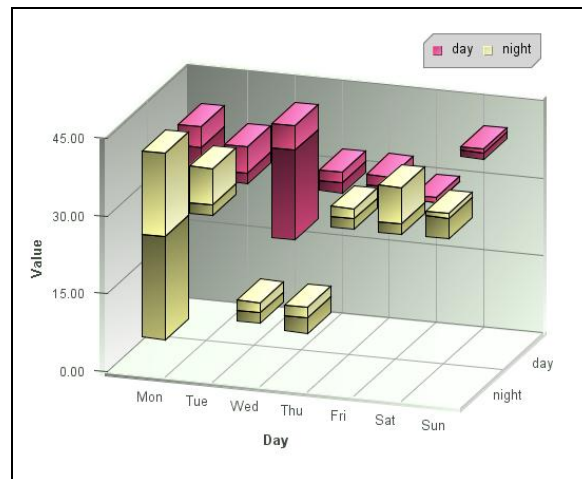
Stack charts allow an additional dimension of data called a sum by. The sum by values is aggregated to show the total for each category. EDAB supports column, bar, and area stacking. A special type of chart in this category is a 100% column chart. This chart, instead of showing the aggregated value, shows each sum by value as a percentage of the total.

## c. XY Charts



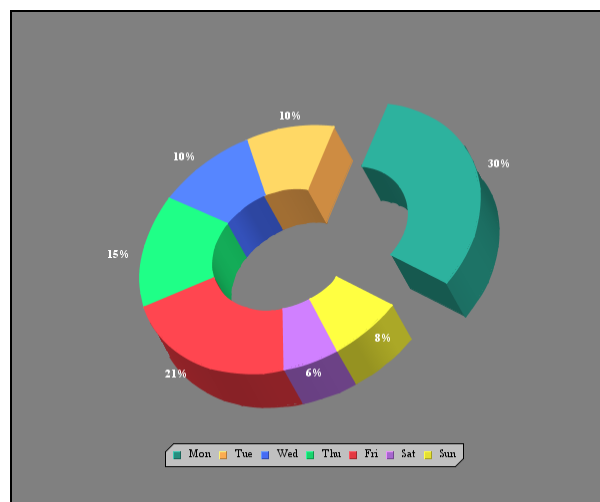
XY charts allow users to plot points in two-dimensional or three-dimensional space. Most common among these are scatter plots, where each point has an XY coordinate, and/or XYZ coordinate. EDAB allows users to add lines or columns to scatter plots, and provides several other layouts including, polar, and surface charts.

#### d. High - Low Charts



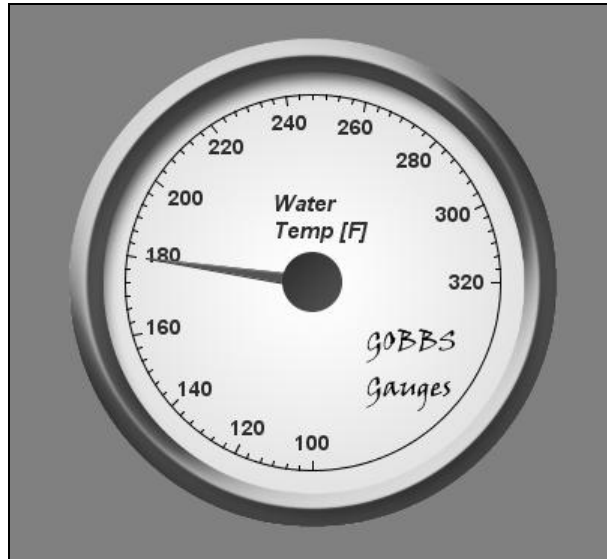
Useful for charting pricing data over time, high-low charts are most commonly used for plotting stock price data. High-low charts allow two to four values to be associated with each category and plot a connecting line, point, or candlestick to show the points. A Gantt layout is also supported that allows each category to have time-based data points, for task start and end times.

#### e. Pie & Doughnut Charts



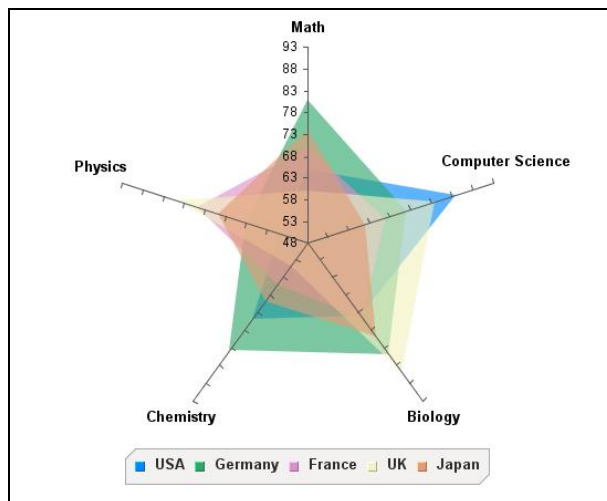
Rather than plotting points on a two-dimensional or three-dimensional area, pie charts plot points as percentages of a whole. This common business chart type can be drawn as a single pie, or plot a data series as multiple pies, one for each category. EDAB also supports a variation of pie chart, i.e. the Doughnut chart.

f. Gauges and Dial charts



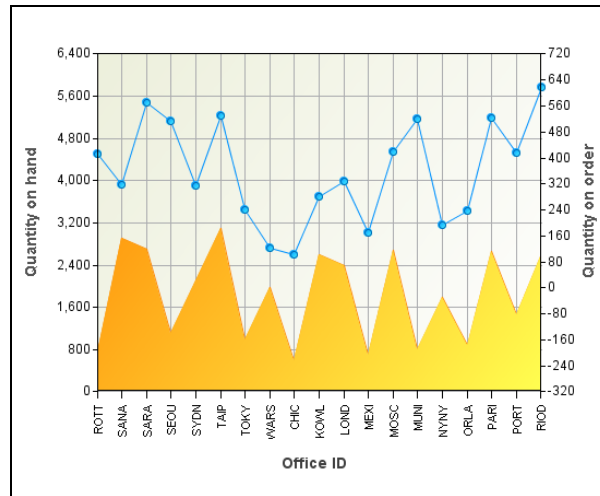
EDAB also allows data to be drawn as hands on a dial or gauge. This representation is useful for dashboard applications, and other monitoring software.

g. Radar Charts



A radar chart is useful to get a quick overview of comparison data in two variables. For example, you can get a quick big picture of how well different products sell in various geographical regions.

## h. Combination Charts



In addition to the many chart types, users can easily create their own custom combination charts. Combination charts allow multiple values for each category to be plotted as a different type on one or more axes. Using these multiple chart representations, users can create chart plots for virtually any applications.

## 2. Customizable Chart Attributes

EDAB allows users to modify over 240 different chart attributes. Everything from axis tickers to legends, to extensive element annotation can be added and modified. Chart attributes can be set in a template at design-time or programmatically through the API.

### a. Chart Axes

Chart axes support automatic or manual scaling. Under automatic scaling the axis will scale to the best range to fit the data supplied to the chart. The scaling will adjust as the data changes. Users can also set fixed or logarithmic scale. Beyond the range and step for the axis, EDAB also supports origin shifting. Users can specify any value for the chart origin; they are not restricted to 0.0. For charts with multiple axes, users can set the scales independently, or align them with the same scale.

Other axis formatting options allow users to draw grid lines across the chart plot, modify the axis appearance, and set the intervals and layout for tickers and labels.

### b. Labels

Virtually any font element can be customized for chart labels. Users can control the font, style, size, and even angle for all labels in the chart. Value and category labels are generated automatically for any chart. In addition, users can add custom titles, and annotation to specific chart elements, as well as show the specific values for each data point in the chart.

### c. Lines & Points

EDAB allows users to draw lines and points for data points regardless of chart type. Lines can be formatted in a number of ways. Users can control line thickness, and create custom dash patterns for dotted lines. A variety of point shapes and sizes are supported, and users can select different point shapes for series elements.

Users can draw additional floating lines anywhere on a plot, or anchor fixed horizontal/vertical lines to specific X or Y axis values.

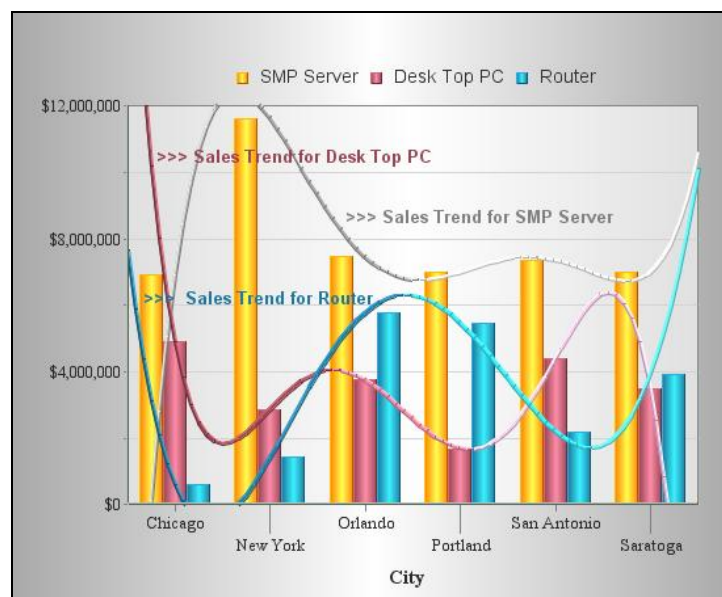
### d. Legends

Chart legends can be modified to use vertical or horizontal layout. Users can draw a border or background for the legend. Users can control which chart elements to display in the legend.

## 3. Statistical & Analysis Features

EDAB supports a number of statistical and control features in charts. Statistical chart options include a box and whiskers plot that shows the distribution of data for each category with any outliers. Users can also track frequency data using histogram plots and sort data using Pareto chart. In addition to these plot options, users can add many types of trend lines to charts. Trending options range from moving averages, to logarithmic functions, to normal distribution curves.

EDAB also allows users to setup control lines and areas. These features are useful for SPC-type applications. They allow users to see when data falls into a particular range, or past a threshold with just a glance. Control areas can be drawn on a chart plot, or used to highlight chart data points.



Built-in drill down capability allows users to create linked series of charts. Users can click a particular data point and drill into another chart with details for that particular category/series value. Drill down charts can aggregate data at the top level, and show more details of the chart

data as users click through, or they can link different charts with different data using query parameters.

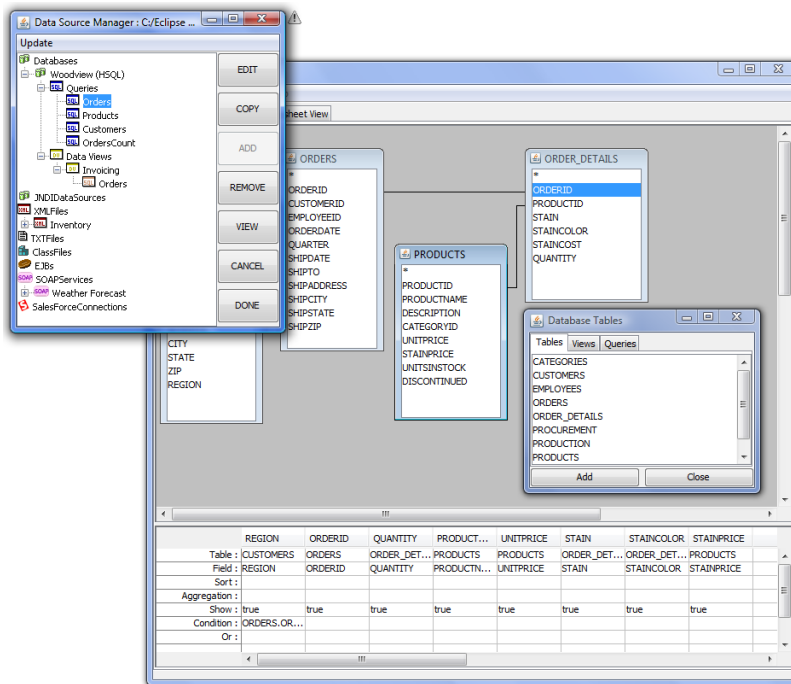
For charts that plot data over time, EDAB provides a time-series zooming feature. Using this feature, users can aggregate data points into specific intervals. For example, a user could plot a year's worth of data, by showing the average of all the points for each month. This feature provides a clean view of charts that may otherwise contain too much data.

## C. Enterprise Data Source Integration

EDAB provides interfaces to manage and retrieve data for charts/reports/maps from across the enterprise. Users can directly query databases via JDBC or using JNDI data sources with full SQL control. In addition data can be retrieved from SOAP data sources (WSDL and Salesforce), Java classes, EJBs, or using connection pools to leverage application model infrastructure. Legacy or application data returned in XML format can also be queried. Data sources and queries are stored in XML registries, allowing them to be re-used across multiple charts/reports. Registries are created and edited through the data source manager interface, which is launched from the Organizer.

### 1. Complete SQL Control

Unlike many dashboard development tools, EDAB gives users full control over the SQL that is generated to retrieve the report data. In addition, three different interfaces are provided for users to query databases. For advanced users, EDAB allows users to simply enter or import a SQL statement. The full SQL statement can be imported and run intact to generate report data. For intermediate users, EDAB provides a graphical query builder. The query builder allows users to design queries in a QBE style format that allows them to select fields, conditions, joins, aggregation, and even build complex expressions using imported and custom database functions.

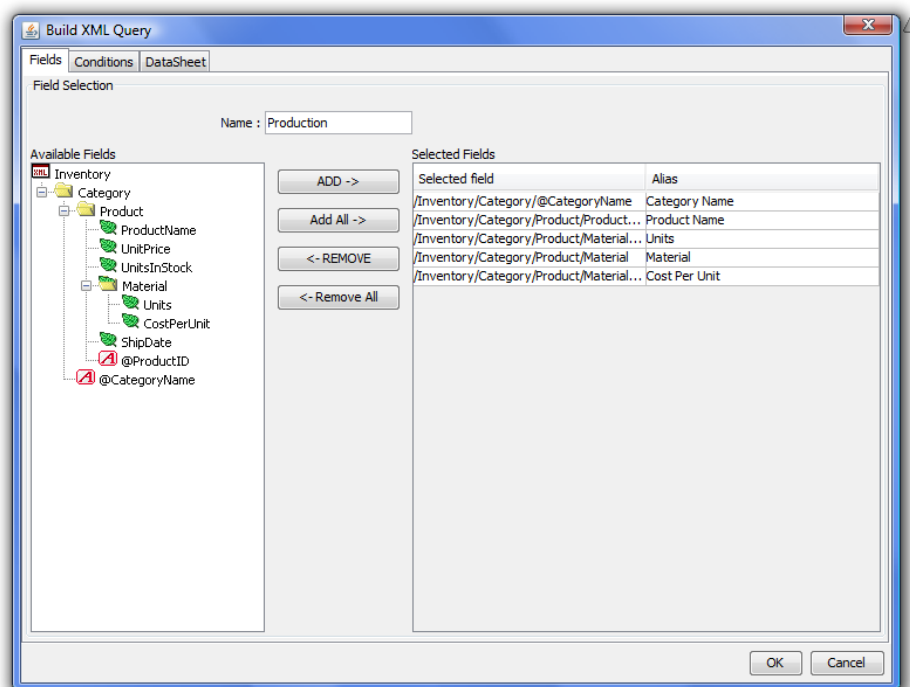


For users with limited knowledge of the underlying database names or structure, EDAB provides the data view interface. In building a data view an administrator can pre-define tables, joins, fields, and even filters creating in effect a local schema for the user to select from. End users can then select (typically aliased) fields, and filter results without any knowledge of the underlying database structures.

All data sources are accessible in the Organizer as well as Quick Designer.

## 2. Extensive XML Support

Many application models rely on XML to encode and transfer data between application components. To report on this type of data EDAB includes extensive interfaces to set up XML data definitions and query them. Based on a DTD or XML schema, users can then generate queries from an XML file, or an XML output stream from a servlet/JSP.



## 3. Java Object/Array Data

In addition to directly retrieving data from relational databases or XML sources, EDAB lets you pass data directly into a report from Java objects or arrays, or by connecting to EJBs. At run-time data can be passed directly into the report, and at design-time object/array data can be pulled from a Java class file. Several different interfaces are provided for users to bring their application data into EDAB.

### Code Sample: Class to return a simple data array for a report

```
import java.awt.*;
import quadbase.reportdesigner.ReportAPI.*;
import quadbase.reportdesigner.util.*;

public class SampleData implements IDataSource {

    // Setting DbData for passing data as arguments
    String dataType[] = {"string", "string", "double", "double"};
    String fieldName[] = {"OrderID", "Product", "Price", "Quantity"};
    String records[][] = {{"1001", "Chair", "325.00", "4"},
                          {"1001", "Table", "1211.00", "1"},
                          {"1020", "Dresser", "2214.00", "1"},
                          {"1020", "Table", "1211.00", "1"},
                          {"1020", "Cabinet", "4021.00", "2"},
                          {"1031", "Chair", "325.00", "2"},
                          {"1044", "Table", "1211.00", "1"},
                          {"1044", "Dresser", "2214.00", "1"};

    DbData data = new DbData(dataType, fieldName, records);

    // create a empty constructor
    public SampleData() {};

    // implement getResultSet
    public IResultSet getResultSet() { return data; }

}
```

## 4. SOAP Data Source

EDAB allows the user to retrieve data using SOAP (Service Oriented Architecture Protocol). Two types of SOAP data source are supported, namely WSDL compliant and Salesforce. To connect to a SOAP data source using WSDL, the user does not have to know URLs for the services, SOAP actions, operation names and parameters. All that is required is the location of WSDL file, which contains all the necessary information. A couple of dialogs in Data Source Manager facilitate setting a WSDL SOAP data source easily.

Likewise for existing Salesforce users, Salesforce SOAP data sources can be set up in a couple of simple dialogs in Data Source Manager. The user must have a valid Salesforce account and have access to a Salesforce account from a trusted network. A SOQL (Salesforce Object Query Language) needs to be included to complete the data source set up. Query parameters can be added to the query in the same manner as database queries.

## IV. Designing Reports

EDAB supports reports as well as charts in dashboards. However, unlike EspressoReport ES which has a full-featured applet based Report Designer, reports are created/edited in QuickDesigner, a thin-client interface. QuickDesigner offers a simple wizard-based interface which requires a very short learning curve. QuickDesigner is launched from the start-up page.



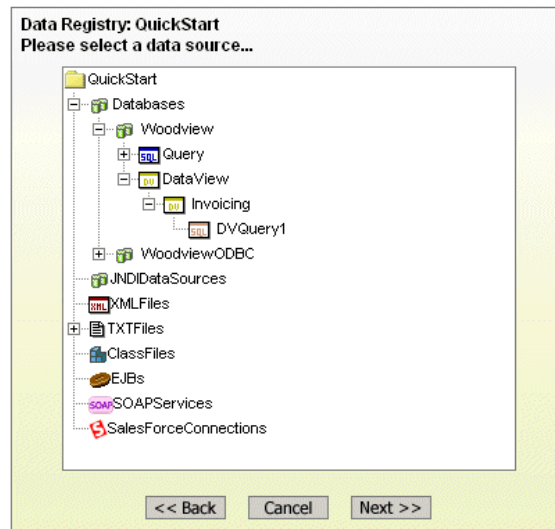
## A. Report Types

EDAB's QuickDesigner supports tabular reports with or without grouping and summary information. Charts can be included in a report as well. In addition, the user can also make standalone charts albeit editing features is a subset of Chart Designer loaded from the Organizer.

## B. Accessing Data

As in Chart Designer, all data sources created in Data Registry are available in QuickDesigner.

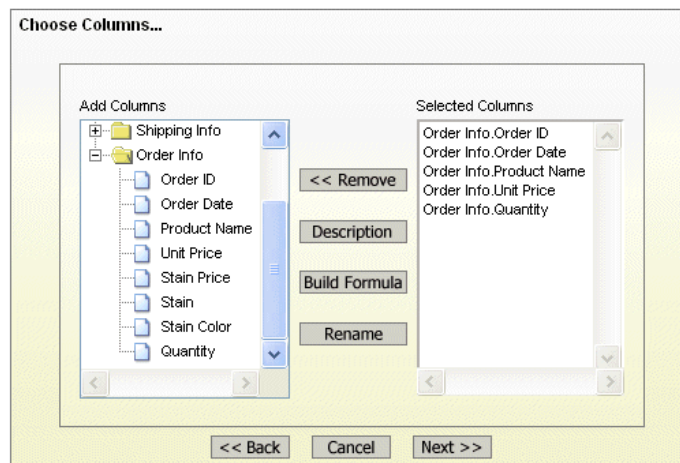
*EspressDashboard QuickDesigner*



## C. Creating a Query

If the data source selected is a data view, the user can make a data view query which allows the user to make ad hoc queries. The user can also select a pre-built data view query.

*EspressDashboard QuickDesigner*



With query loaded in the query screen, the user can specify sorting, group-by fields, aggregations and filter conditions.

**Set Conditions...**

Name:

Column Name	Sort	Aggregation	Show	Condition	
Order Info.Order ID	ascending	[none]	<input checked="" type="checkbox"/>		<input type="button" value="View Column"/>
Order Info.Order Date	[no sort]	[none]	<input type="checkbox"/>		<input type="button" value="View Column"/>
Order Info.Product Name	[no sort]	[none]	<input checked="" type="checkbox"/>		<input type="button" value="View Column"/>
Order Info.Unit Price	[no sort]	[none]	<input checked="" type="checkbox"/>		<input type="button" value="View Column"/>
Order Info.Quantity	[no sort]	[none]	<input checked="" type="checkbox"/>		<input type="button" value="View Column"/>
SubTotal	[no sort]	[none]	<input checked="" type="checkbox"/>		<input type="button" value="View Column"/>

The user will get a chance to preview the query result. This is also the next screen if the user selects a data source other than data view. The user is given a choice to create a chart or a report.

**Data Source Results...**

Order ID	Product Name	Unit Price	Quantity	SubTotal
10001	Shimaliya Chair	424.00	14	5936.00
10001	Ra Dresser	1745.00	12	20940.00
10001	Enill Chair	450.00	12	5400.00
10002	Nisaba Chair	414.00	21	8694.00
10002	Set Dresser	1645.00	16	26320.00
10003	Sbuqamuma Chair	445.00	41	18245.00
10003	Zabada Chair	312.00	12	3744.00
10003	Nergal Chair	335.00	4	1340.00
10003	Anubis Table	1687.00	13	21931.00
10004	Nusku Chair	425.00	22	9350.00

First 10 records...

## D. Create a Report

The user can either make a simple columnar report or select columns for grouping and aggregation to make a summary break report.

**Select Grouping...**

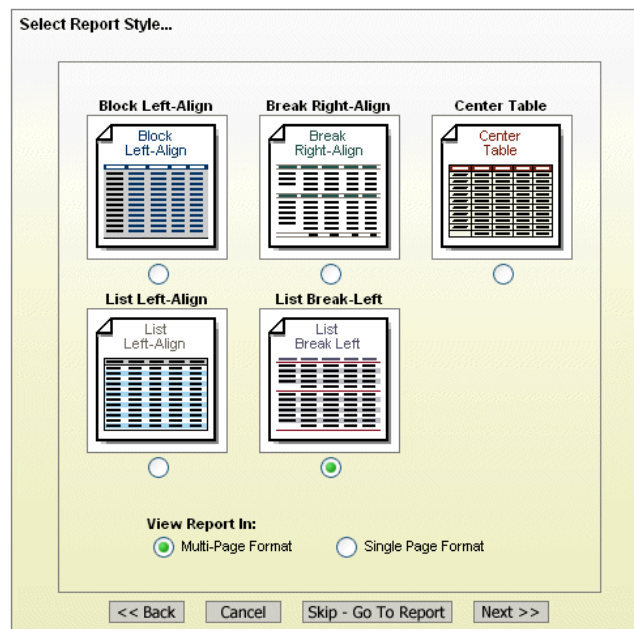
Selected Fields (Aggregation)

- Order ID (NONE)
- Product Name (NONE)
- Unit Price (NONE)
- Quantity (NONE)
- SubTotal (NONE)

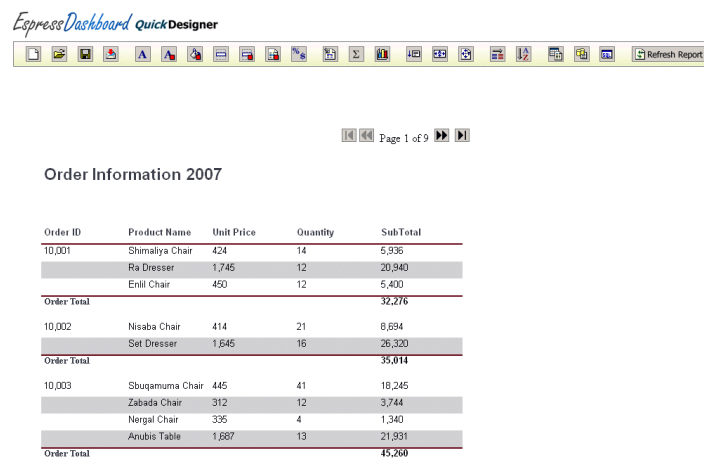
Group By

- Order ID

There are five formatting styles that allow the user to quickly make a nice looking report ready for publishing in dashboards.



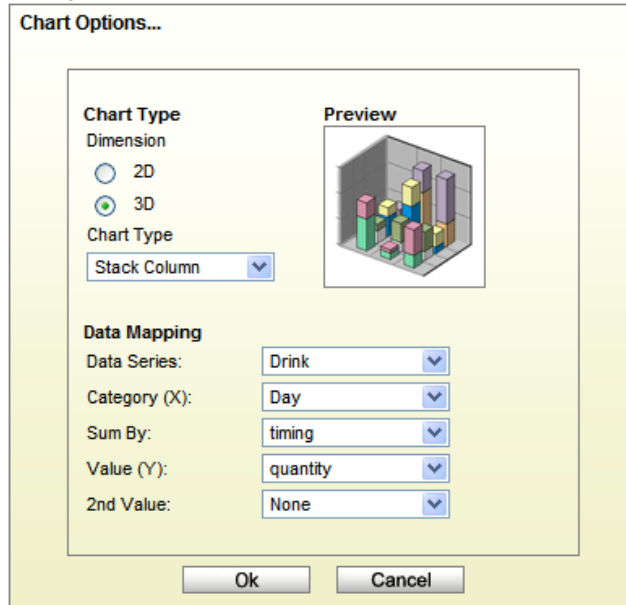
Finally, in the designer screen, the menu bar gives the user a range of formatting functions to customize the look and feel of the report. In this screen, the user can also add charts to the report to enhance the presentation.



## E. Creating a Chart

From the query result preview screen, if the user elects to create a chart, he/she will be directed to a simplified version of the Chart Designer.

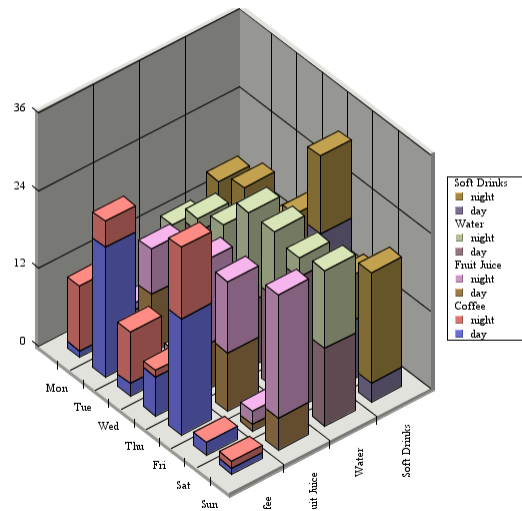
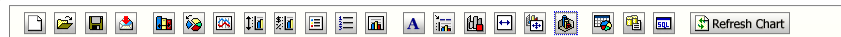
# EspressDashboard QuickDesigner



After selecting a chart type, the user can do data mapping for the axes, series and even make a combination chart. The user can further customize the chart with a full range of options on the tool bar in the design screen. The finished chart can be saved for publishing in dashboards.

## EspressDashboard QuickDesigner

Home



## V. Designing Maps

In addition to charts and reports, the user can add maps to the dashboard. Two types of maps are supported, namely Google maps and SVG maps. EDAB Google Maps are useful for displaying exact spots on the maps. Google maps use high quality satellite imagery, a very wide zoom range is possible, making it possible to display every imaginable area of the world. Numerous applications are possible. Basically any report that requires geographical information (e.g., city, state postal code) as part of the report can use a map. SVG maps on the other hand do not give wide zoom range. As such, it is mainly designed for a quick overview for comparing data points on a geographical or spatial basis. Areas on the SVG maps can be color coded to show the different ranges of values of certain data of interest (such as revenue, population, growth rate etc.).

### A. Google Maps

As the name implies, Google maps are powered by Google. As such, a license key is required to run the maps. Once the license key is installed in EDAB, it's ready to display Google maps. To display desired data points on the map, coordinates of longitudes and latitudes are required. In EDAB Google maps, this information is supplied by the coordinate file.

#### 1. Coordinate File

To create a coordinate file, the user needs to first choose a data source. The coordinate file can be generated by one of three methods (1) from the data source, (2) by geocoding or (3) manually. The coordinate file consists of records that give a point ID for each pair of longitude and latitude coordinates. A point ID can be a single field or multiple fields. An example of a point ID is (city, state). So, the record would look like the following:

"Chicago", "IL", "-87.624333", "41.879535", i.e. (city, state, longitude, latitude)

#### 2. Creating Google Map

To create a Google map, a data source has to be selected as in making any report/chart. The data retrieved must have a field or fields that match the point ID. The user must set point mapping, i.e. map the fields in the data source to the point ID fields in the coordinate file.

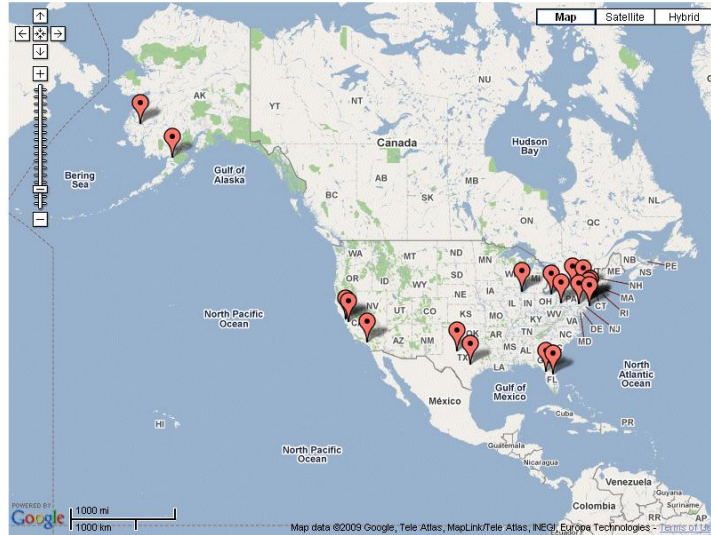
The matching field or fields is what allows Google map to display data for a location (point ID) on the map. For example, the fields (city, state) in the map's data source match the (city, state) fields in the coordinate file such that Google map knows Chicago, IL is at:  
(longitude, latitude) = (-87.624333, 41.879535).

#### 3. Tool Tip Report/Chart

With point mapping set, Google map knows where to display information for each record in the data source on the map. But to display pertinent reporting information on the map, the user needs to add a tool tip report/chart.

Clicking on the tool tip icon on the tool bar in map designer will bring up the QuickDesigner.

*EspressDashboard* Maps



*EspressDashboard* Maps

Data Source Results...

CUSTOMERID	COMPANY	ADDRESS	CITY	STATE	ZIP
1	Allied Furniture Emporium	384 Broad St.	Littletown	NY	18322

First 10 records...

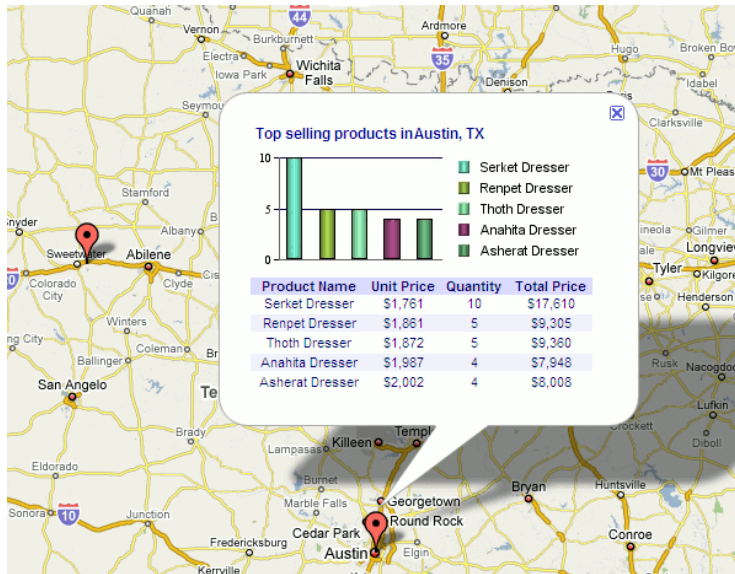
*EspressDashboard* QuickDesigner



Page 1 of 1

CUSTOMERID	COMPANY	ADDRESS	CITY	STATE	ZIP
1	Allied Furniture	384 Broad St.	Littletown	NY	18322

The created report or chart (a report can also contain charts) will show up when the mouse is over a bubble which indicates a point ID exists on that location on the map.

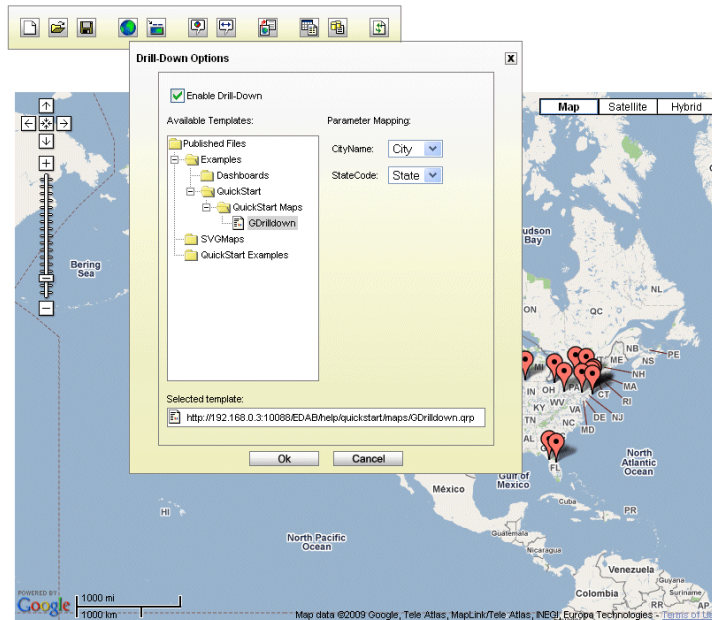


In the above example, there are five records in the map data source that match the point ID (Austin, TX). Five fields for the record are displayed to show (Product Name, Unit Price, Quantity, Total Price).

#### 4. Drill-down

EDAB Google maps allow drill-down from a tool tip bubble to another report, chart or map.

#### EspressDashboard Maps



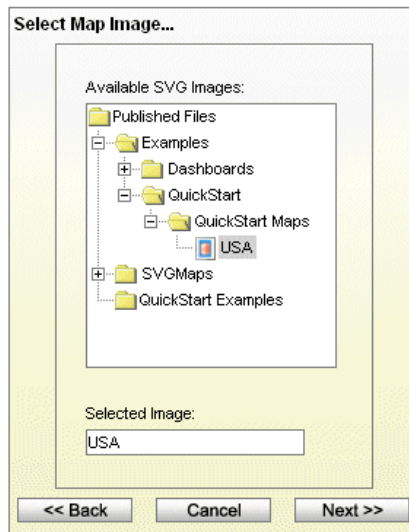
By clicking on the drill-down icon on the tool bar, a dialog will pop up showing the available templates for setting up drill-down. The template selected for drill-down should have parameters

that match the point ID in the map. In the above example, the template should have either “city” or “state”, or both as parameters.

## B. SVG Maps

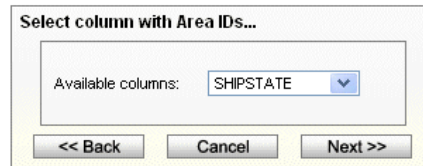
Similar to EDAB Google maps, an EDAB SVG map requires a data source. But unlike Google maps, it does not require a coordinate file and it runs without external third party support. To create an SVG map, the user has to select a data source and an SVG map image file.

### *EspressDashboard* Maps



Map Images are SVG image files with data structures containing geographic data. As such there are area ID's which can be used to identify areas on the SVG map. The data source used has to have a data field that match the area ID's in order to make the map display useful information.

### *EspressDashboard* Maps

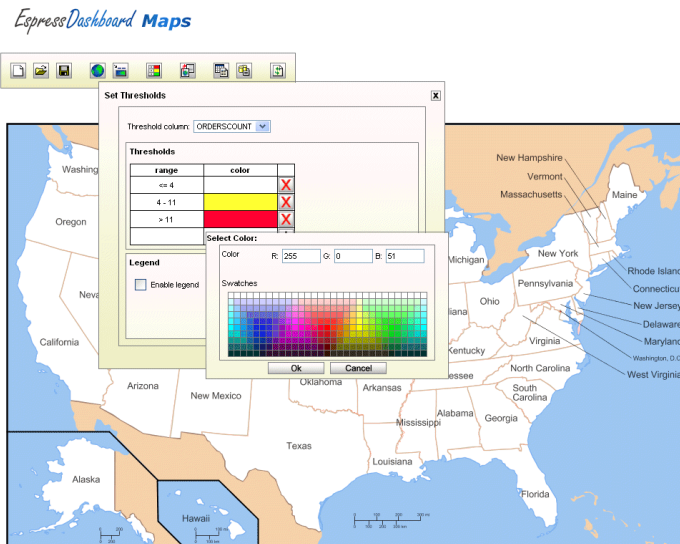


The concept is similar to setting point ID mapping in EDAB Google maps.

## 1. Color Coding

The user can map colors to specific ranges of values of a given field in the data source so that a quick overview of distribution of data values geographically can be recognized easily.

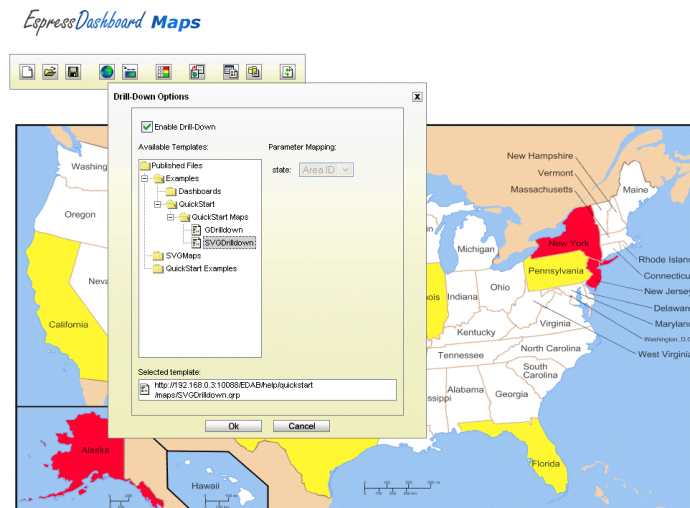




A legend for the color coding and map title can be added to the SVG map to complete the presentation.

## 2. Drill-down

As in Google maps, SVG maps support drill-down. A list of parameterized charts/reports/maps will be presented to the user. But unlike Google maps, there is only one way to set up the drill-down link in SVG maps, i.e. mapping the Area ID to the parameter in the chart/report/map.

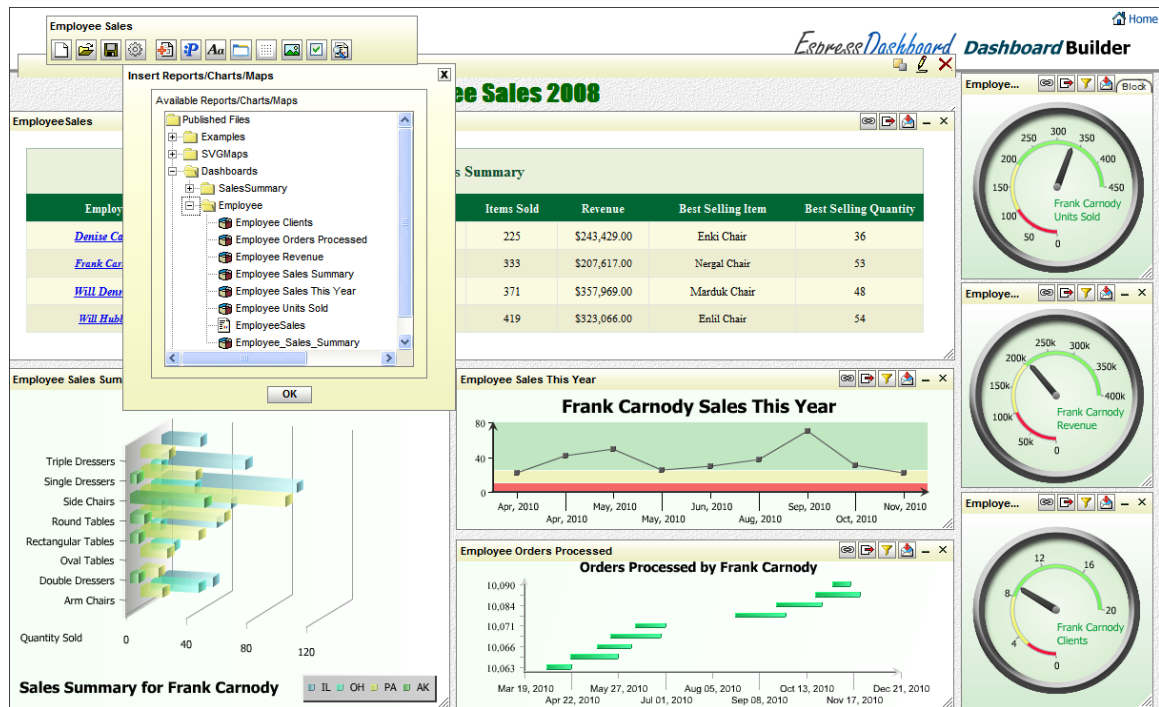


## VI. Putting It Together

The core of the EDAB is the Dashboard Builder. It is a thin client design tool that offers a powerful, yet user friendly, drag-and-drop, and point-and-click environment. Unlike other competitive products, the user can make the entire dashboard with the UI without any scripting or programming. As such, it empowers a wide range of non-technical users without having to expense IT resources.

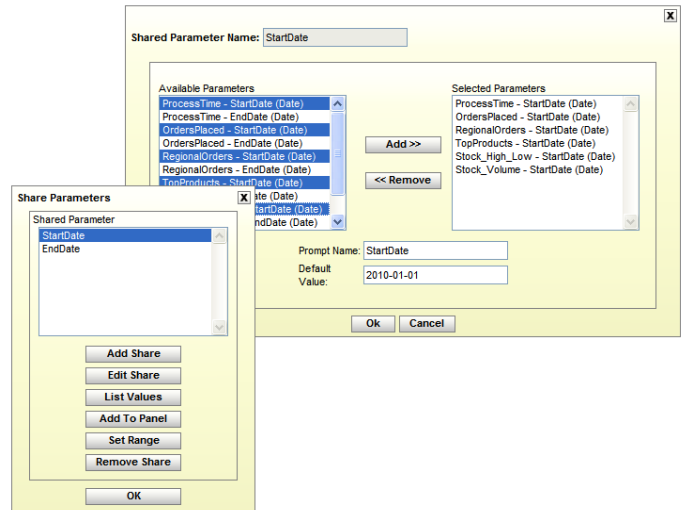
### A. Flexible Layouts

To create a dashboard, simply add the available charts, reports and maps in the Organizer. The dashboard builder allows the user to layout the elements (reports, charts, maps) in any way desired. It will automatically place the elements in an approximate layout. The user can then re-position and re-size (if necessarily) the items (including labels, images and parameters) to make a presentation quality dashboard.



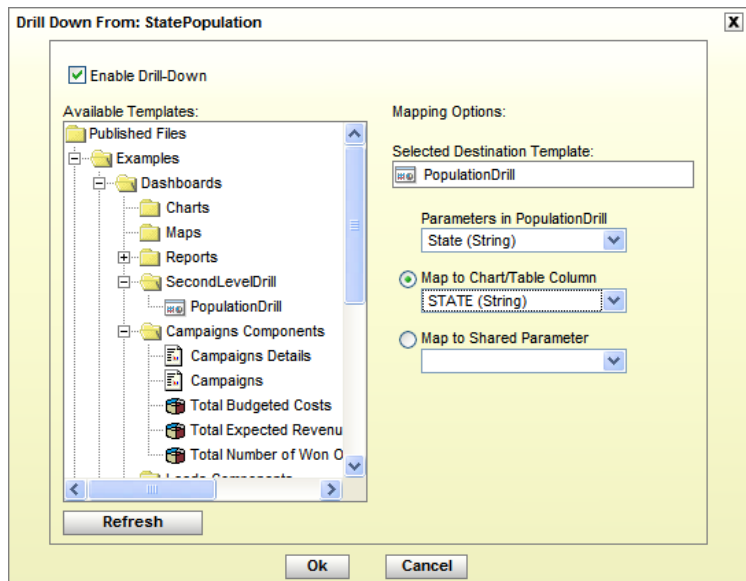
### B. Shared Parameters

Once the users have the reports/charts/maps inserted into the dashboard, they can set up shared parameters provided that some of the elements have similar parameters that can share the same values. The parameter layout options are given in [section II.A](#) above.

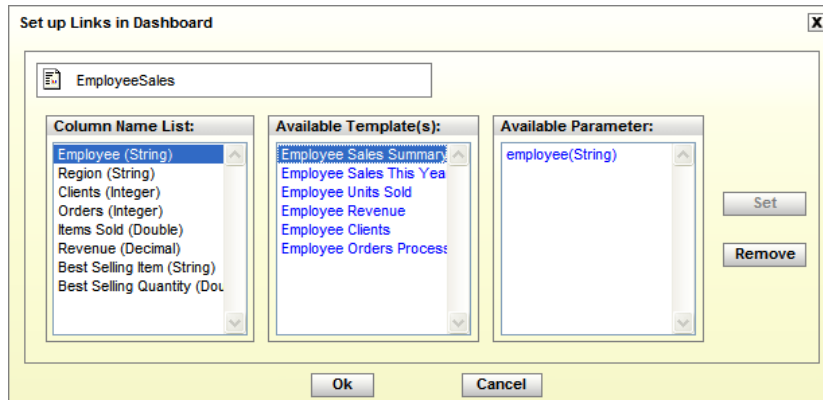


### C. Adding Drill-Down

To add a drill-down chart or report to an element, simply click on the “add/modify Drill-Down” button. The drill-down dialog will pop up. Select a chart, report, map or another dashboard that has a matching parameter for drill-down. If the chosen chart/report/map has other parameters, they must be mapped to shared parameters.



To add a link to an element, click on the “add/modify link” button. A dialog will pop up for the user to choose the column for linking. If there are parameterized reports/charts in the dashboard, they will be shown in the “Available Templates” panel. The user can then select the ones with matching parameters for linking.



## D. Complete Customization

The look and feel of the dashboard is highly customizable. The user can add labels, background color, background images to the dashboard. Text font, size, color can all be customized. The parameter panel can be customized in the same way.



## VII. Global Deployment Ready

EspressReport ES fully supports Internationalization. Locale specific formatting allows data elements to be displayed correctly for specific locale/time-zone. International characters are supported in reports, charts and maps. A utility program is included for the user to translate any text in the UI and messages to any language. Export formats are automatically generated with UTF-8 character encoding (except for PDF where font mapping is required) fully supporting all languages.

## VIII. Technology and Architecture

EspressDashboard is a pure Java product, giving it the flexibility to run on nearly any platform. Designed to leverage users' existing infrastructure investments it deploys completely within J2EE application environments, with no separate server-side application processes. It runs with most major application servers (such as Tomcat, JBOSS, WebSphere, Oracle AppServer) and database engines (e.g. MySQL, Oracle, DB2, MS SQL Server, Postgres, Informix).

### A. EspressDashboard Components

EspressDashboard has seven major components.

**EDAB Server:** The server is the back-end to EDAB. It deploys as a servlet collection within an application server or servlet container, and manages design and deployment for Reports and Charts. The server handles user authentication, scheduling, archiving, and provides the data access and file I/O for clients running Chart Designer.

**Organizer:** The Organizer is a powerful graphical user interface that acts as a virtual file management system. It allows users to organize charts, reports, and other files in virtual folders, generate URLs deploying charts and reports, schedule/archive charts and reports, and set file-level privileges. It also provides users with an interface for managing data sources, and designing database queries.

**Chart Designer:** The Chart Designer is a graphical user interface, launched within the Organizer that allows users to design and customize charts. Its point and click interface enables the swift and easy creation of charts with an almost infinite degree of flexibility.

**Map Designer:** The Map Designer is a thin-client tool for creating/editing Google maps, creating coordinate files, and SVG maps. EDAB Google Maps can be further customized with tool-tip reports and drill-down. SVG maps can be customized with color coded areas and drill-down as well.

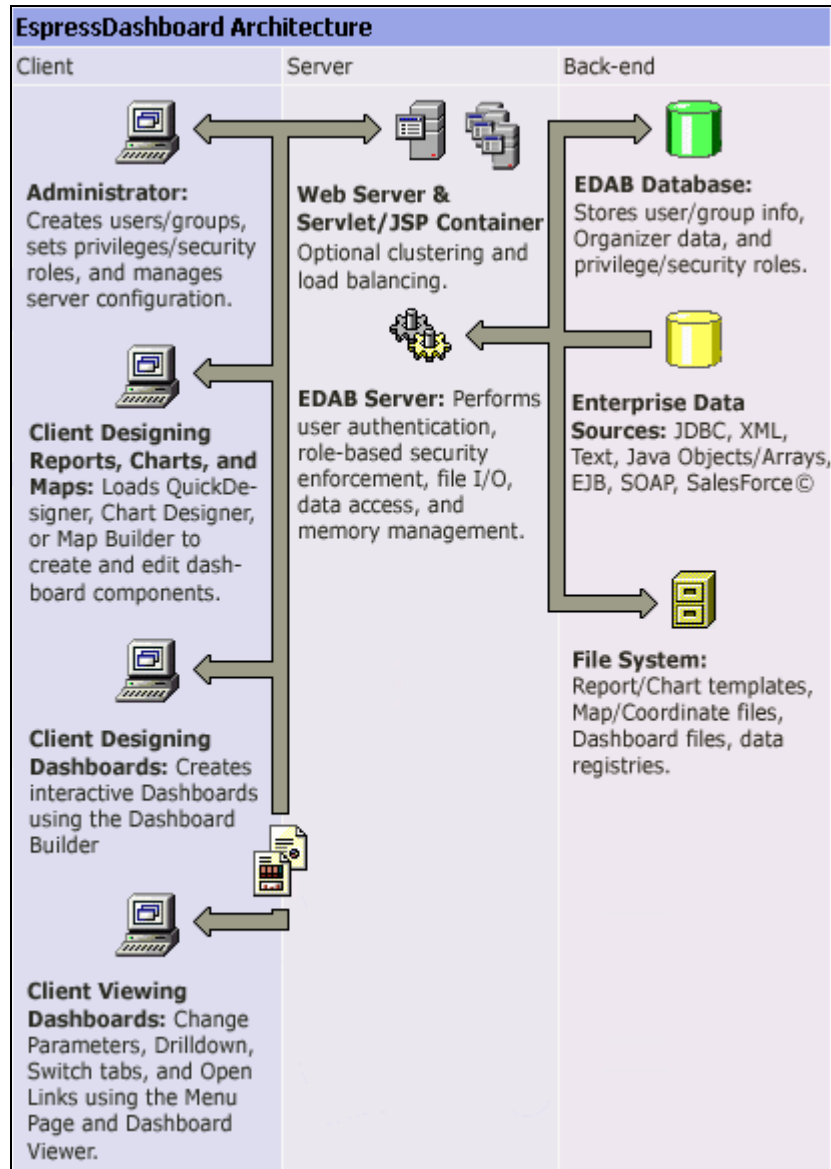
**QuickDesigner:** The QuickDesigner is a thin-client ad-hoc reporting tool. It allows users to quickly design queries and build simple reports and charts. Limited formatting options allow users to customize reports and charts, and save them back to the Organizer.

**Dashboard Builder:** The Dashboard Builder is a thin-client dashboard design/creation tool. It allows developers as well as non-technical users to easily build custom briefings/dashboards using charts, reports and maps deployed in the Organizer.

**ERES (Menu) API:** The ERES API is a Java application programming interface that allows users to interface programmatically with the EDAB Server and Organizer. Users can get a handle to the Organizer to retrieve information about files and permissions. Users can also do run-time customization on reports and charts.

## B. EspressoDashboard Architecture

EspressoDashboard is designed to deploy in a Web application environment. The following diagram illustrates the basic architecture of an EDAB deployment.



The EDAB server is deployed as a servlet collection within an application server/servlet & JSP container. Other servlets/JSPs can be deployed in the server to connect to, and retrieve information from the EDAB server (like file names, schedule information, and schedule reports/charts).

EDAB can be deployed in a single server or in a clustered environment. When running in a cluster, one server acts as a load balancer, and routes all incoming client requests to cluster members, while maintaining a common back-end file structure. This configuration option allows EDAB to scale to high-availability deployments with thousands of users.

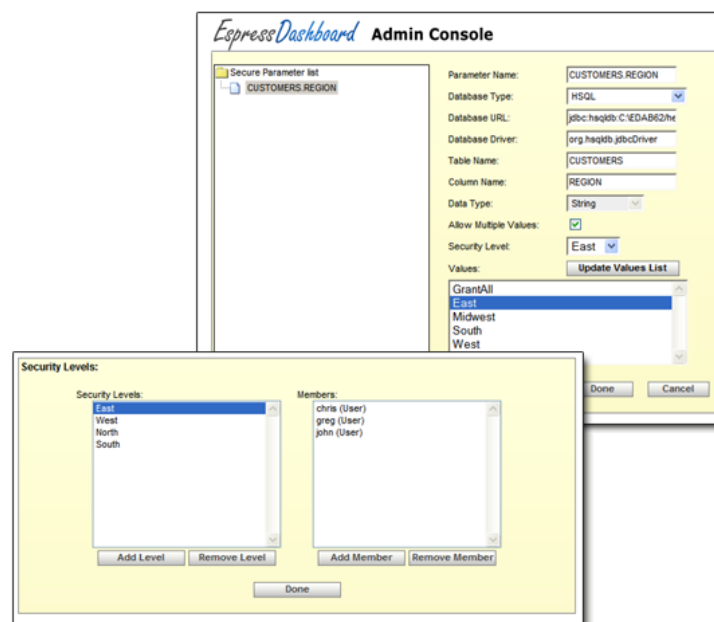
On the back end, information for EDAB including user/group information, the organizer structure and files, and security and privilege information are saved in a database. The server also performs data access and buffering for reports and charts, and file I/O on the server-side.

Users can also integrate custom security models and users/groups with EDAB. EDAB allows direct integration with users/groups in LDAP systems, and stored in relation databases. In addition EDAB provides open server extensions that allow users programmatically integrate any custom security model with the EDAB architecture.

Clients can be administrators modifying users, privileges, and server settings from the remote Admin Console, or the Organizer. Clients can load the Chart Designer through the Organizer to create charts, or load the thin-client QuickDesigner for making simple reports and chart and ad hoc reporting and analysis. Clients viewing dashboards can access the menu, make URL calls to the EDAB server, or connect to other applications to retrieve charts, reports and maps.

### C. Administration & Security

Almost all of the administration functions for the EDAB server and users base can be performed remotely. The thin-client admin console allows administrators to create users and groups, and configure server features. Security and privileges can be applied in the Organizer interface.



EspressReport ES provides a powerful security framework to handle user/group privileges as well as role based secured parameter and element level security. ERES binds privileges to report developers using an ownership model that allows security to be enforced automatically as reporting implementations grow and change. Administrators can also apply a more traditional file/folder security framework.

Beyond privileges, security features can be extended to report templates. Templates can be configured to have specific report elements or data columns change depending on which user/group is viewing the report. In addition filters can also be automatically applied to reports to facilitate role-based security. As such, users with different security credentials viewing the same reports/charts see different data, i.e. only what they are authorized based on their role. LDAP and custom external security model integration are also supported.

## **IX. Conclusion**

EspressDashboard® (EDAB) provides a robust, centralized charting and reporting architecture that leverages the functionality of Quadbase's pure Java charting and reporting engine and extends it to the enterprise. With built-in automatic report delivery capabilities, end-to-end user/data security, advanced ad-hoc query and analysis features, and scalable pure Java architecture, EDAB leapfrogs the competition and provides an ideal platform for easily creating and delivering information-rich KPI dashboards to a wide audience of business users without the need for IT development effort.

For more information about these tools, please visit <http://www.quadbase.com>.