An introduction to Proteus

A **lean** way to make ***continual*** and ***incremental*** **improvements**...

The world of **Information Management** is in continual change...
Organizations need to be efficient and "**lean**" in an increasingly competitive market space, and the amount of information to "digest" and compile in order to **make "optimal" decisions** is increasing in volume and disparity.

While IT Departments struggle to reduce the "software count", to create a "leaner" and more manageable "information management infrastructure", various departments are continually asking for improved support in their efforts to perform better:

Management + Finance	"Business Intelligence" tools to help them make better informed decisions.
Engineers	Various improvements regarding integration between existing legacy systems, ERP system, Planning system, Document system, etc
Analysts	Ability to load data from multiple sources and drill down/aggregate/report in various ways, beyond what a normal BI tool can achieve (such as time-phasing of data).
HR Planning	Asking for a better solution than Excel for making their manpower projection plans for the next 3 years.
... and others...	Proteus has a large set of tools to apply for a wide range of likely and unlikely situations.

In this dynamic landscape, Proteus has its mission:

- To help the IT departments **reduce the "software count"** by being **ONE software** that can have a **wide range of applications**.
- To address the need for Management + Finance requirements for state of the art **Business Intelligence**.
- ...the Engineer's need for smooth and **seamless integration between systems**.
- ...the various needs of the Analysts and the HR planners.
- and more... - in fact **it is difficult to think of a situation where Proteus could NOT make a positive contribution to any given IM problem**:

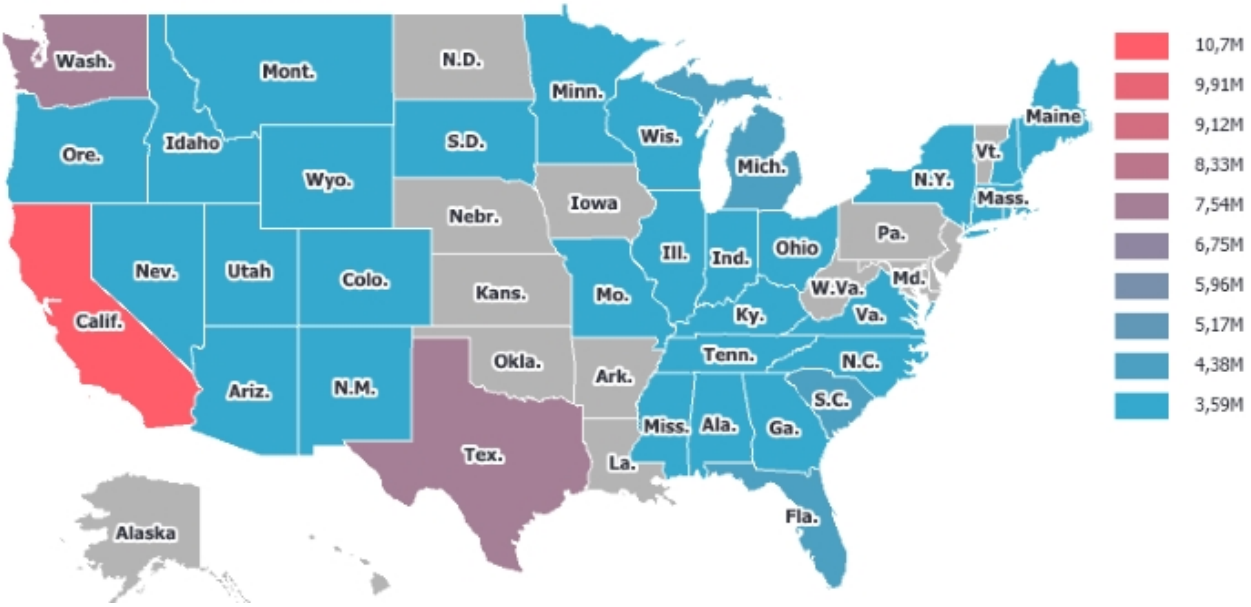
  Hopefully this **suite of 15 Demo Workspaces** can prove that this last statement is **more than just fancy words**.
  The growing community of Proteus Workspace builders are making solutions to solve IM related problems for organizations ranging from **Elementary Schools** to **NASA**..

Let us know if this sounds interesting for ***your*** **organization**: www.promineo.com

- Dashboard Demo -

Create your own dashboard in no time.

With the new Proteus Dashboard, a wide range of possibilities for presenting data is unleashed...



This Workspace reads a csv file containing **one year's monthly US Sales data** (52 000 records) for a company, and presents it in various ways:

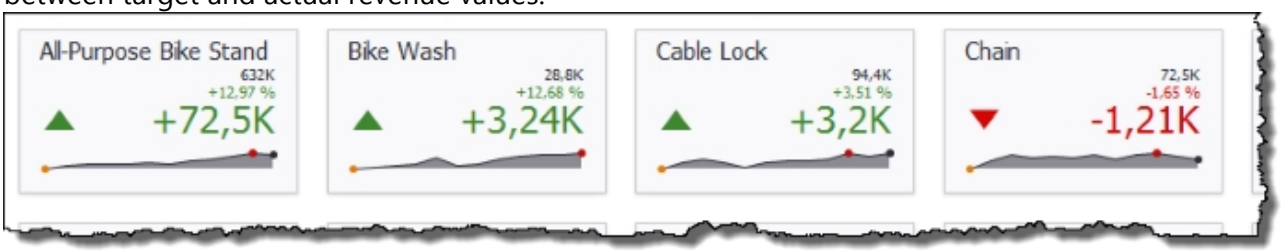
1. Revenue numbers are used to color each state on the **map** (called a "choropleth map") where the "redness" corresponds to "higher revenue".

2. A **Pie chart** indicate the revenue division between product categories.

3. A **Chart** shows the **monthly revenue curves** for the **top performing 5 products**.

4. A **Grid** shows the products (according to category) and **compares the target values with the actual values** (**green** arrow up if better than target, and **red** arrow down if below).

5. "**Cards**" for each product showing a sparkline trend curve over the year, as well as a comparison between target and actual revenue values.

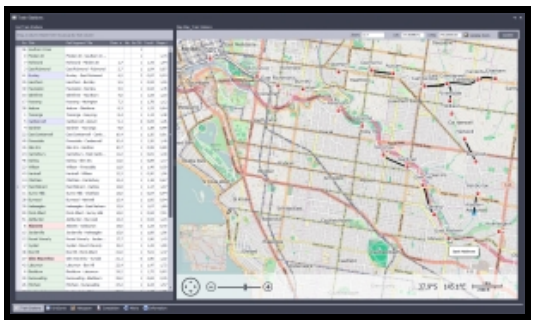


A Dashboard is designed at runtime by dragging appropriate controls onto the design surface: Chart, Pivot Table, Data Card, Gauge, Pie Chart, Map or Grid

Then you drop data fields onto corresponding arguments, values, and series.

All of this can be learned in a matter of 15 minutes: [See how easy it is to create a dashboard]

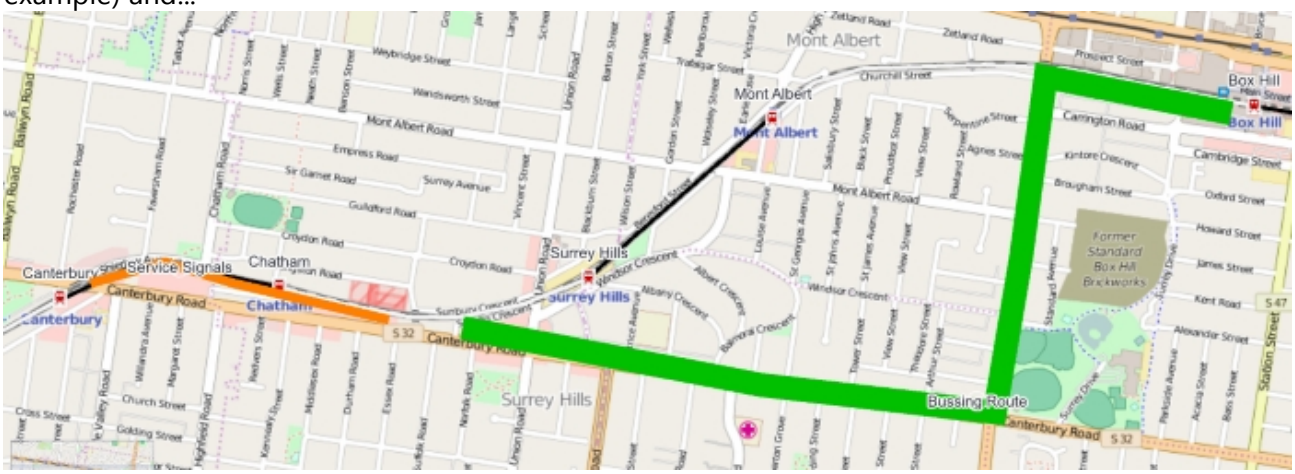
- Map Demo -



Add Map visualization to any Proteus Workspace.

The new Map control provides all the functionality required to embed popular map services into your Proteus Workspace. You can choose from two map data sources: Bing Maps™ and the license free OpenStreetMap.
This demo is loosely based on a commercial application of Proteus called "RailPlanner", intended primarily for use by rail companies in Australia (the Splash screen was used from it to show example of this type of customization). It allows connecting to existing (maintenance) work database, and visualizing where the work is taking place - On the map, but also according to their rail schematics (bitmap using the Overlay Control - see separate demo).

It can use 2 different sources of data for each level on the map:
1. For defining background objects (such as the train stations and track between them in the demo example) and...



2. For defining foreground object (polygons indicating where on the rail system work is being performed.

The data can be **interactively edited/created** (for each level) **directly on the map**, and the combined length of all lines in a polygon, allowing **measurements to be made along a path**. The coordinates of the cursor is tracked (upper right corner) together with current zoom factor. These can be stored for an objects so that it will return to the exact same location and zoom.

Map providers:
The Map Control does not license right of use to any map provider. However, the OpenStreetMap requires no license and the terms are given in link below, together with Bing Licensing and Pricing Information.
Bing License info: http://www.microsoft.com/maps/product/licensing.aspx
OpenStreetMap Legal FAQ: http://wiki.openstreetmap.org/wiki/Legal_FAQ

- Overlay Demo -

Add the ability to create interactive "hotspots" on a bitmap.

The Overlay control in Proteus allows a bitmap, or a set of hierarchically related bitmaps, to become "**clickable**", as well as **showing status** (color and transparency) for **any number of polygons** defined on it.
This opens up a wide range of possibilities to interact with you data in a more "topological" way.
Examples of existing Proteus solutions where the Overlay control is an integral part are:

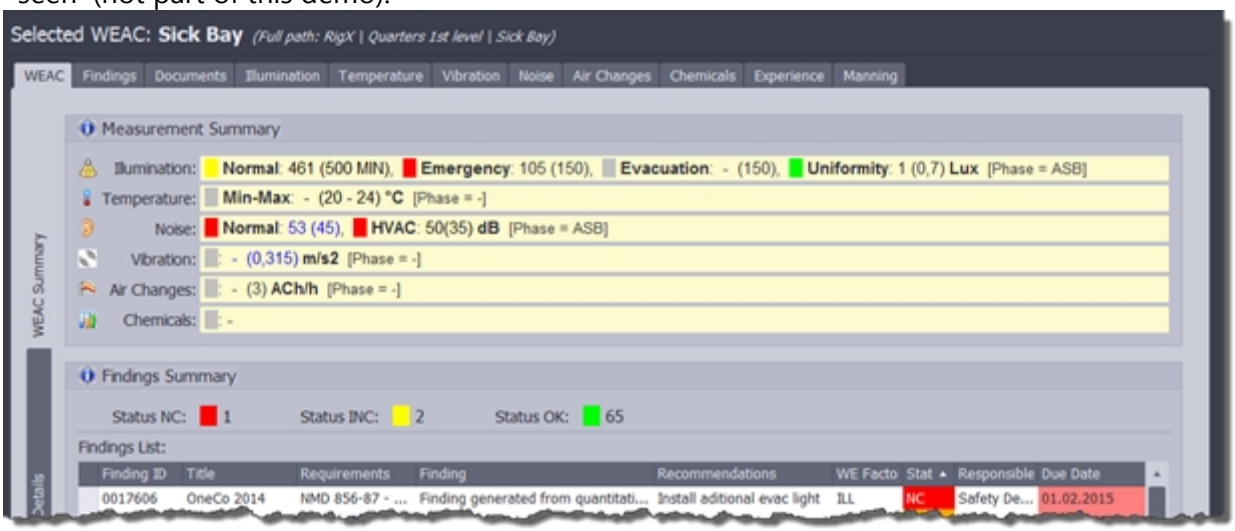
1. **Visualization of Work Environment compliance** (this commercial solution is called "Proteus WEAC" and manages regulatory requirements for rigs in Norway).

2. **Compliance status for each of the 32 guidelines** that the US Govt. have when assessing the "health" of a government funded project above 100 million dollars.

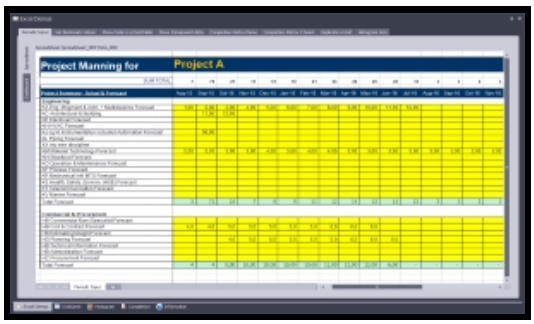
Each of these examples utilize the ability to show status (e.g: **green**=Good, **red**=Bad) as well as selecting an area on rig (example 1) or guideline (example 2). Notice that the transparency of the colors can be controlled so that the original content of the bitmap still can be seen.

Proteus supports editing the "hotspot" polygons in a special design mode, and the text can also be positioned at the appropriate location in the polygon.

Screenshot from "Proteus WEAC" where details from selected area can be seen (not part of this demo):



- Spreadsheet Demo -



Add Spreadsheet(s) to any Workspace.

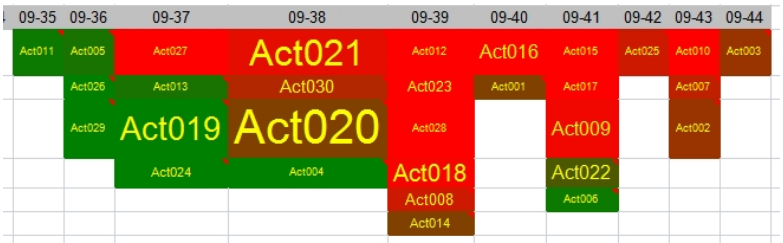
The new **Spreadsheet Control** opens up a wide range of possibilities to **embed Excel functionality in any Workspace** (with virtually 100% fidelity to Excel's feature set).
The Spreadsheet Demo Workspace showcases some different usages, and we may look at 3 of these here:

1. Using a pre-defined template to **enter monthly data** for various rows. Any value entered will immediately be added as a new row in a periodic database table.

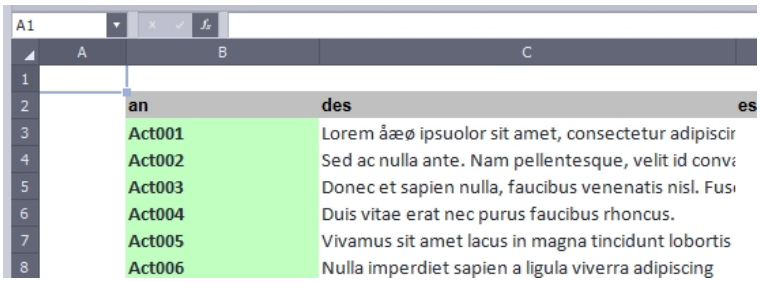
In this way you **preserve the useful and familiar "Excel format" of entering values, while removing the drawback** that normally follows with it: No easy way to process the data, since it not in a database format.

Project Summary - Actual & Forecast	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15
Engineering					
KA Eng. Mngment & Adm. + Multidisipline Forecast	1,00	2,00	3,00	4,00	5,00
KC Architectural & Building		11,00	12,00		
KE Electrical Forecast					
KH HVAC Forecast					
KJ og KI Instrumentation included Automation Forecast		56,00			
KL Piping Forecast					
XX my new discipline					
KM Material Technology Forecast	2,00	2,30	3,00	3,00	4,00
KN Structural Forecast					

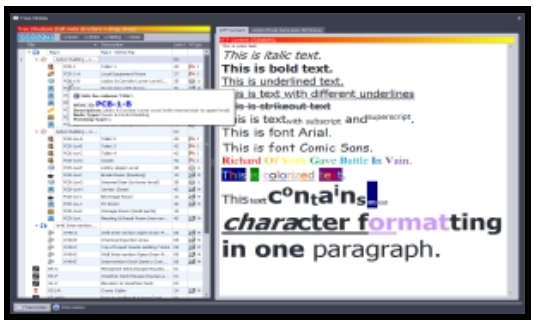
2. Rendering a **Completion Matrix** in the Spreadsheet control. Multiple sheets can be generated, each representing a specific selection of data. The example at right illustrates a case where color is interpolated from progress from green to red (100% to 0%), and the font-size from the scope of the activity.



3. Replication a **Grid Layout** in the Spreadsheet. Data seen in a regular grid can be recreated in a Spreadsheet format. In later versions of Proteus, It will be possible to edit the content of a Dataset (Grid) using this format instead of the grid. Currently the changes will not be saved back to database.

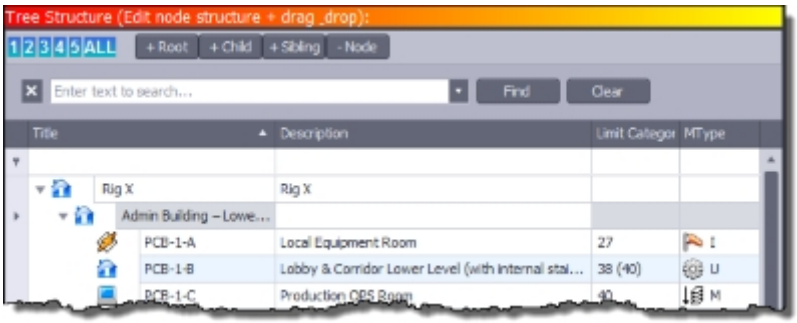


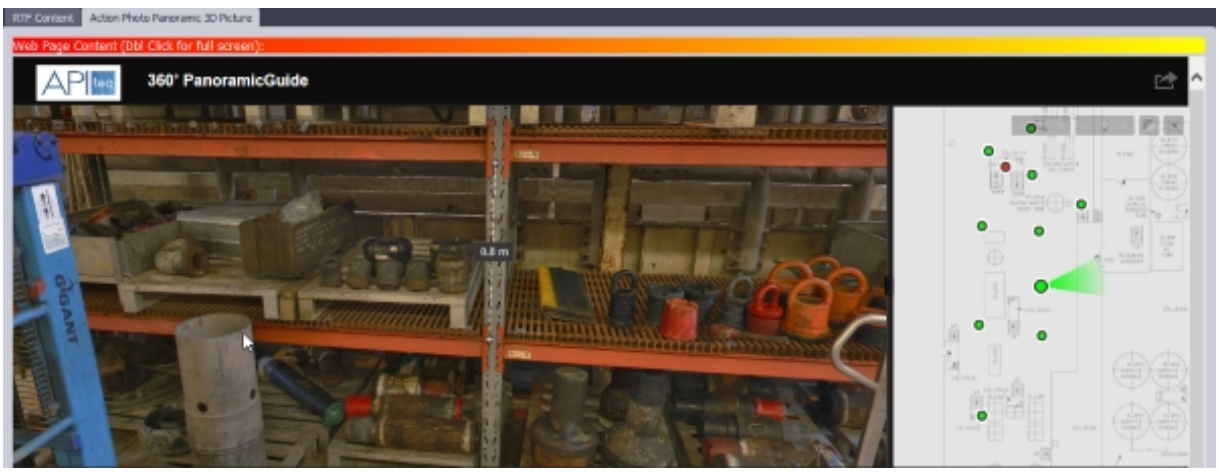
- RTF Tree Notes -



Add RichText functionality - and more...

This Workspace demonstrates how a **TreeList control** can be used in conjunction with a **Rich Text Editor control** and a **Browser control**. These are located in separate tabs, so one can be seen at a time. The Rich Text Editor allows copy paste of images as well as formatted text. The Brower control in the demo shows a **360º Panoramic Picture** (from API Teq - much like Google Street View) for each selected node in the tree. Below are some screenshots illustrating the above text:

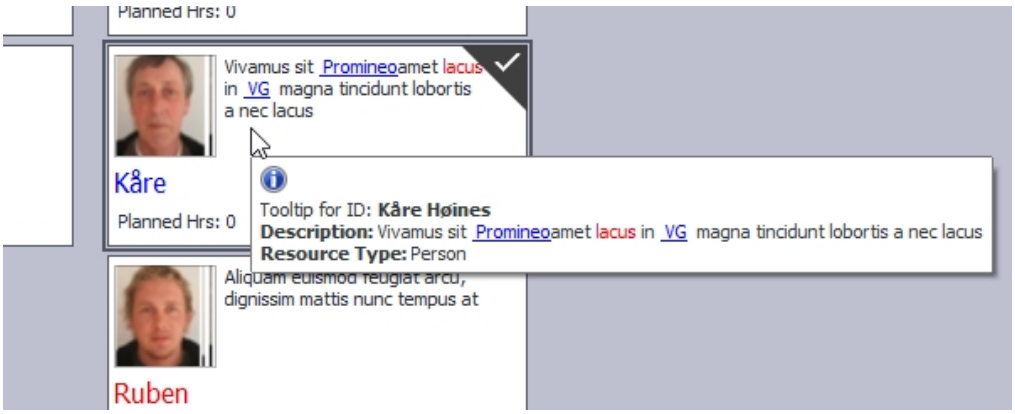




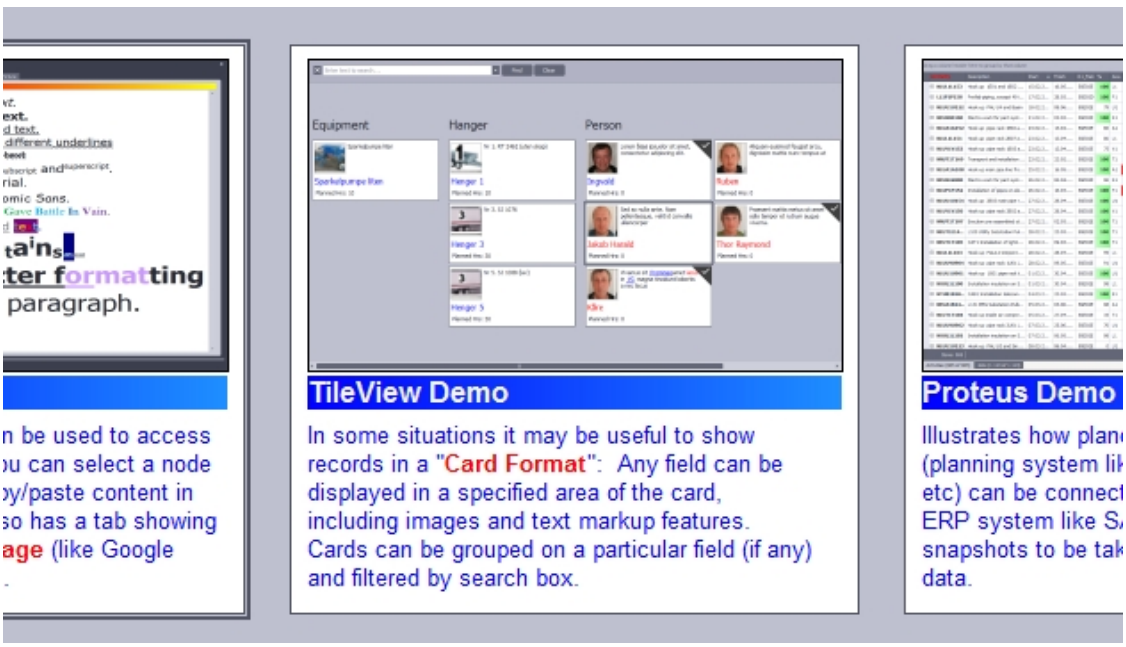
- TileView Demo -

The TileView Control: A new useful way of presenting data

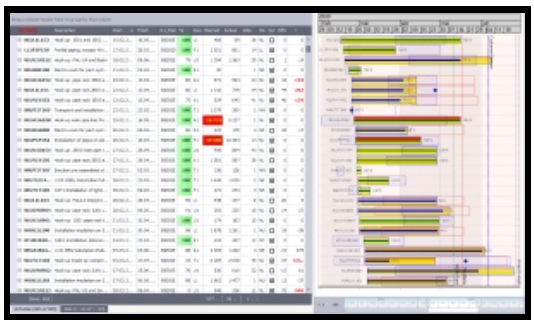
This Workspace demos how information from a row in a table can be **"mapped" to an area on a "Tiled Card"**. It also illustrates how right click on a card can toggle the checkmark in upper right corner, as well as how tooltips can contain links that can be clicked on. Cards can optionally be grouped according to any field (such as category), and the size of the card, as well as arrangement of rows and columns can be defined. Some screenshots to illustrate the above:



As you may have noticed, the "Workspace Launcher" Workspace, also uses the TileView control to show a screenshot of each Workspace to launch, as well as some text describing what it does, and a tooltip giving additional information.



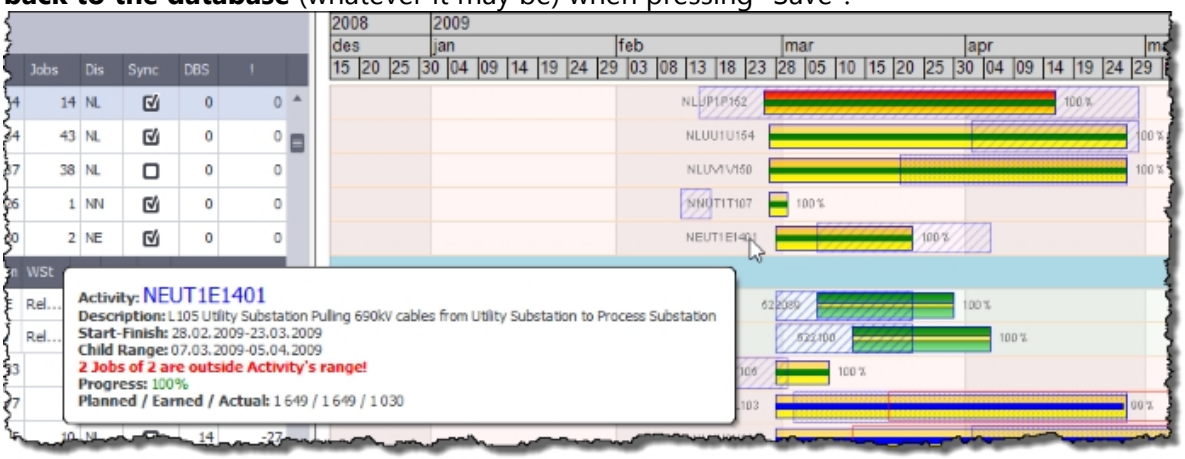
- Proteus Demo -



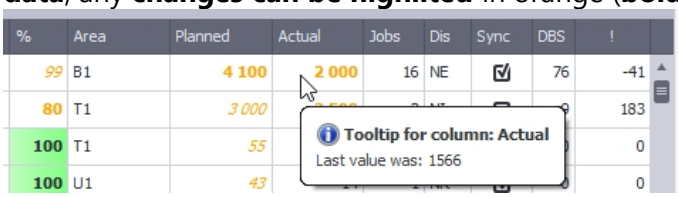
When related data is managed by two or more software systems

This demo is a response to a common problem in the "Large Projects" industry:
The **high level planning** is done in a Planning Software, typically Primavera P6, Microsoft Project, or Safran (in Norway), while the **lower levels of planning** (job cards, documents, engineering objects, etc) is done in an EPR system, typically SAP, IFS, or in-house legacy system.
The Gantt bars have been designed to show a visual region where the underlying job cards are located, and if any of the jobs are outside the start-finish range of the activity, then it is displayed in a hatch brush. In general the Gantt bar's visual properties allow for "endless" customizations.

In this way discrepancies between these sets of planning data can be visualized, but more importantly: filtered out and corrected, using drag and drop directly in the Gantt, and **committing the changes back to the database** (whatever it may be) when pressing "Save".

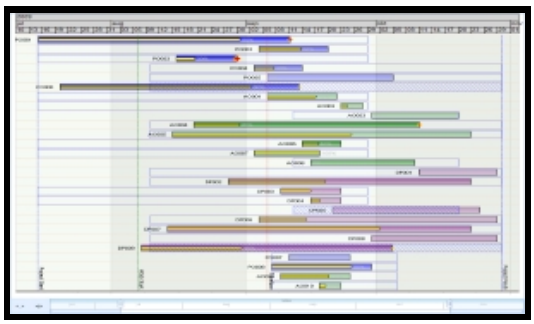


Proteus has the ability to take a **snapshot** of any data loaded in a Workspace, and **comparing it to live data**; any **changes can be highlited** in orange (**bold**=increased value, *italic*=decreased)



Here is a list of other highlights that can be seen in this Workspace:
1. **Time phased histogram** (using the calendars defined in the resident system)
2. A **Completion Matrix** showing a information dense overview of progress status.
3. A list of "**Watchdog Alerts**" (e.g. "5 jobs have increased the scope with over 5%").
4. A **Dashboard** that can show which disciplines have had the biggest changes.
5. An **Overlay control** showing where work is being done on the plant.

- Proteus Training -



Integration across multiple systems

This demo is similar to the "Proteus Demo" Workspace, and but integrates across more systems/levels. It can be used as a real life starting point for **integration between any planning system** and **IFS**. These are the hierarchies:

1. **Activity**
    2. **Jobs** (in fact 3 different types: Work Orders, POs, and Document Packages)
        3. **Documents** (only relevant for Document Packages)
        4. **Operations** (only relevant for WOs and POs)

Proteus allows for **aggregating data across hierarchies**, so that document progress can be aggregated up to activity level, and similarly for operations. In this way the activity level can be "enriched" with **new progress metrics**, and can provide **important steering information** for the planners. It would be natural to set up "Watchdog Alerts" to present all activities having "large" inconsistencies between the various progresses metrics, and present these for the planners.

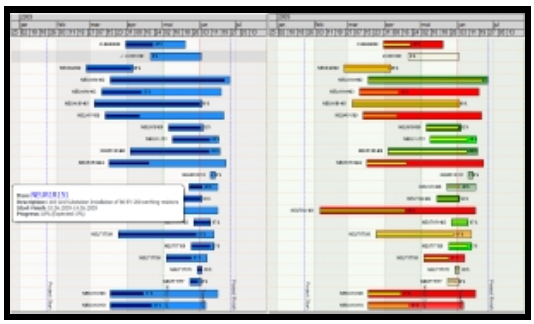
A new feature in Proteus 2.3 is the ability to show **"Excel style" conditional formatting** in a Grid (and a Dashboard). The Workspace uses some of these to illustrate **productivity** at activity level, as well as **productivity trend relative last snapshot**. In Norway, the productivity is measured as Actual divided by Earned hours; so the higher the number, the worse for the project, and the more "red" it will appear in the grid. Similarly, if the number has increased since last snapshot, the "Last Productivity" column will become red to indicate a worsened status.

Productivity	Last Productivity
0,8	1,3
1,2	0,6
1,3	1,3
0,5	0,7

Below is a screenshot showcasing more of the visual possibilities.

State	Sales	Sales vs Target	Profit	Satisfaction	Market Share
Alabama	88M	-0,59 %	6M	4,6	15 %
Arizona	73M	-0,94 %	-4M	3,6	11 %
California	468M	2,76 %	44M	4,6	34 %
Colorado	71M	0,36 %	5M	4,1	28 %

- Perception Psychology -

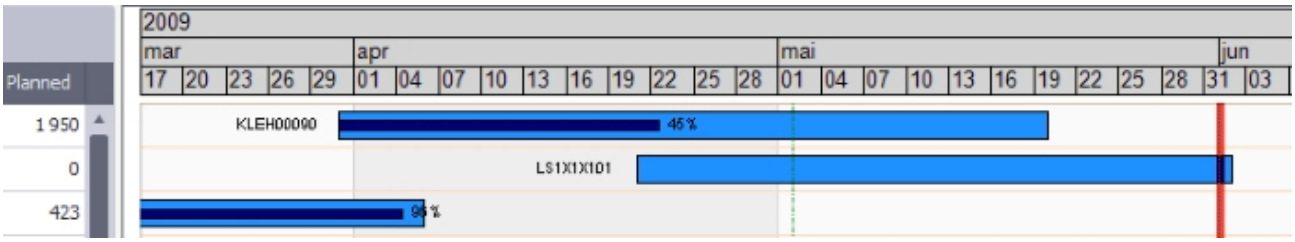


How to make planning data "make sense" - in a literal way...

This demo shows how **perception psychology** (using colors to mean specific things) can let the planner **SEE which activities he/she should pay more attention to than others**. A formula has been implemented in Proteus (that can be easily customized) that gives an "**attention score**" depending on the **PERCENT BEHIND SCHEDULE** and **NUMBER OF HOURS**. The formula is quite simple:

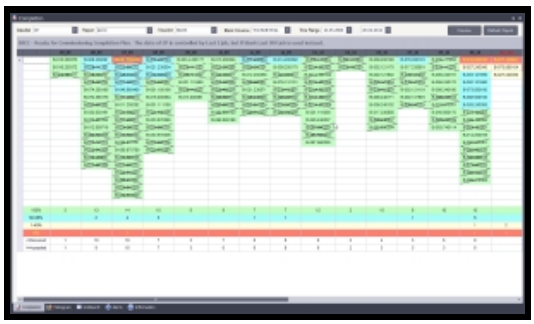
Attention Score = Percent Behind Schedule x Number of Hours / 100

This score is then used to color the activities on a gradient scale from green (ahead of schedule) to red (behind schedule), but where the **Transparency** of the Gantt Bar is controlled by the **number of hours**. If an activity has 0 hours it will in essence become completely transparent (se bar 2 from the top in example below), while if it had many hours and was many percent behind schedule - it would be completely red (below, the red vertical line indicates "Today"):



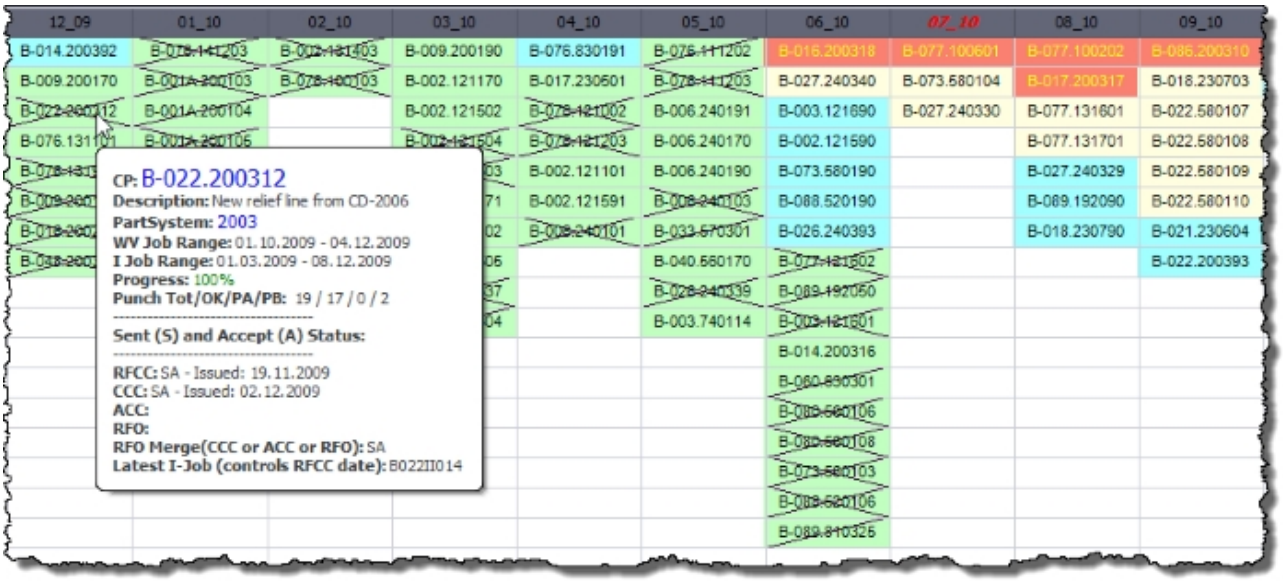
Note: A natural refinement of the Score value would be to include **critical path** (total float). If this had a low value (it is nearer to critical path), a bad score would be "magnified" to a much worse score due to the criticality of the activity. Such a change can be done in Proteus with configuration alone - so can be done with in-house personnel in minutes.

- Commissioning -



How complex information can be SEEN at a glance

This demo shows a good example of when a **Completion Matrix** can be the ultimate tool to present information...



12_09	01_10	02_10	03_10	04_10	05_10	06_10	07_10	08_10	09_10
B-014.200392	B-078-141203	B-002-181403	B-009.200190	B-076.830191	B-076-111202	B-016.200318	B-077.100601	B-077.100202	B-086.200310
B-009.200170	B-001A-200103	B-078-100103	B-002.121170	B-017.230601	B-078-111203	B-027.240340	B-073.580104	B-017.200317	B-018.230703
B-022-200312	B-001A-200104		B-002.121502	B-078-121002	B-006.240191	B-003.121690	B-027.240330	B-077.131601	B-022.580107
B-076.131101	B-001A-200106		B-002-121504	B-078-121203	B-006.240170	B-002.121590		B-077.131701	B-022.580108
B-078-131			03	B-002.121101	B-006.240190	B-073.580190		B-027.240329	B-022.580109
B-009-200			71	B-002.121591	B-008-240103	B-088.520190		B-089.192090	B-022.580110
B-018-200			02	B-008-240101	B-033-570301	B-026.240393		B-018.230790	B-021.230604
B-018-200			06		B-040.560170	B-077-121502			B-022.200393
			37		B-028-240139	B-089-192050			
			04		B-003.740114	B-003-121601			
						B-014.200316			
						B-060-890301			
						B-089-560106			
						B-080-560108			
						B-073-580103			
						B-089-560106			
						B-089.810325			

CP: B-022.200312
Description: New relief line from CD-2006
PartSystem: 2003
WV Job Range: 01.10.2009 - 04.12.2009
I Job Range: 01.03.2009 - 08.12.2009
Progress: 100%
Punch Tot/OK/PA/PB: 19 / 17 / 0 / 2

Sent (S) and Accept (A) Status:

RFCC: SA - Issued: 19.11.2009
CCC: SA - Issued: 02.12.2009
ACC:
RFO:
RFO Merge(CCC or ACC or RFO): SA
Latest I-Job (controls RFCC date): B022II014

<u>A Completion Matrix has these characteristics:</u>

1. A **Time Axis** at top, in the example showing weeks (but could be months or days)

2. For each column of that time-axis, a **Lists of Objects** (in this case Commissioning Packages) are shown (in this case that are due that week).

3. Each cell is **colored according to a predefined criteria**. In this case red means 0% progress, green means 100%, and the 2 other colors are intervals in between.

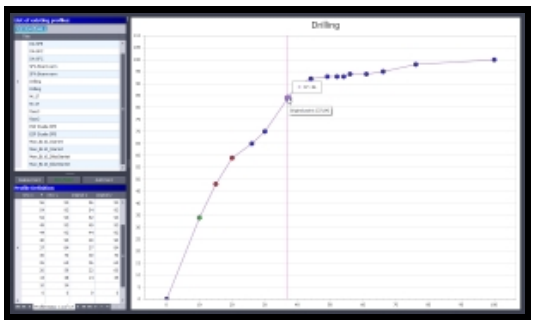
4. Each cell can have **diagonals** controlled by a "criteria" (in this case upward diagonal means "Sent to customer" and the other diagonal means "Accepted by customer"), and the same could have be done for **font size** (e.g the larger the scope the bigger the font for a cell).

5. Each cell can show a (customizable) **tooltip** that can reveal details behind it (in this case aggregated data from lower levels).

6. At the bottom of the "grid" is a **summary statistics section**:

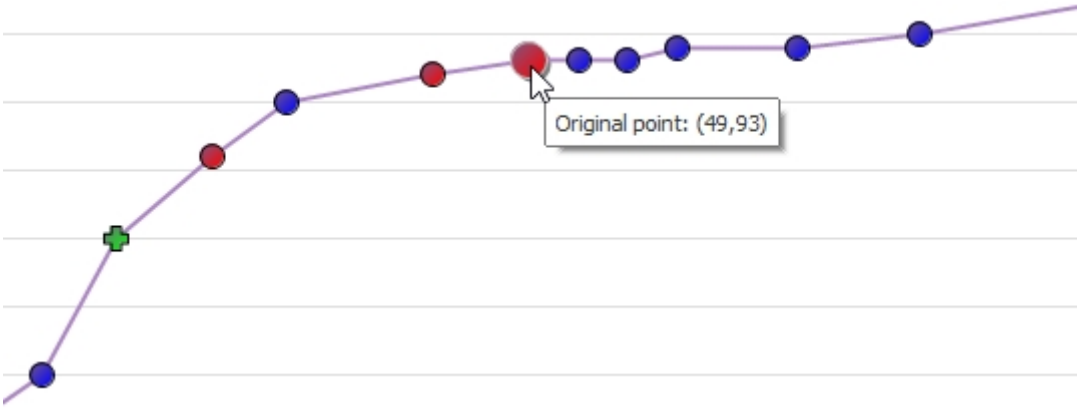
100%	3	13	14	10	6	9
50-99%		2	4	3		
1-49%						
0%			1			
/=Deivered	1	10	16	7	3	7
\=Accepted	1	9	15	7	3	6

- Profile Editor -



How to interactively edit data in a X-Y diagram

This demo shows how an **X-Y chart can be used to interactively edit** a selected curve profile, by dragging the "points" directly in chart. Points can be added and deleted using "buttons", and the result can be saved back to database.



Newly **added points** will show as green "**+**" signs and **modified points** will show in **red** color, and the currently selected point will be a bit larger. All of these properties are completely customizable.

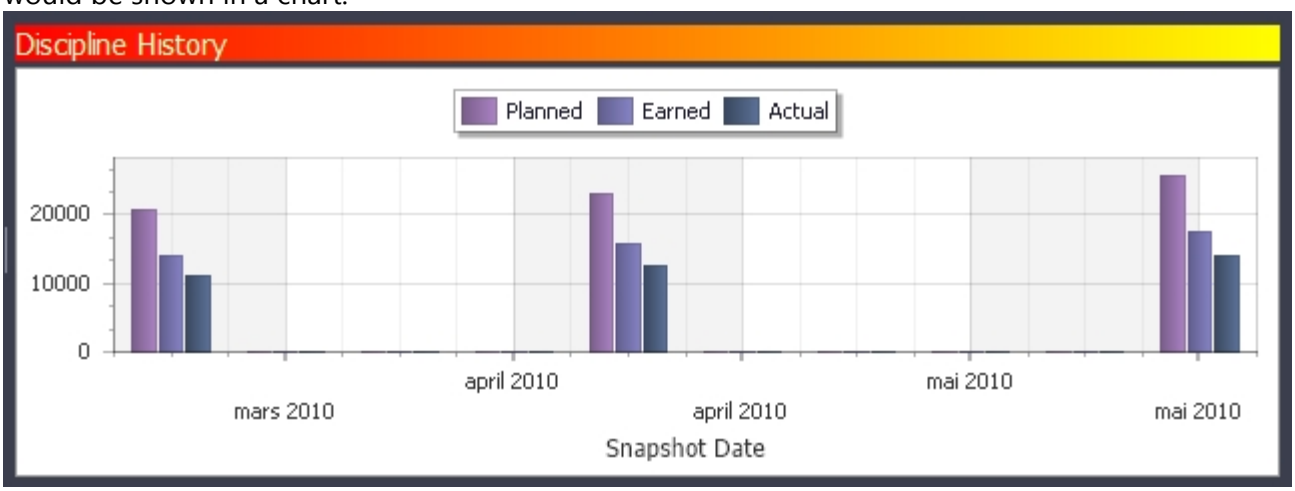
<u>Some notes on interacting with chart:</u>
A point must first be selected with a click (to make it larger) and then it can be clicked again and dragged. Note that initially it is nonly possible to drag a point along the vertical axis, but by toggling the "Fixed" button, it will allow the point to be dragged sideways as well.

- Performance DrillDown -

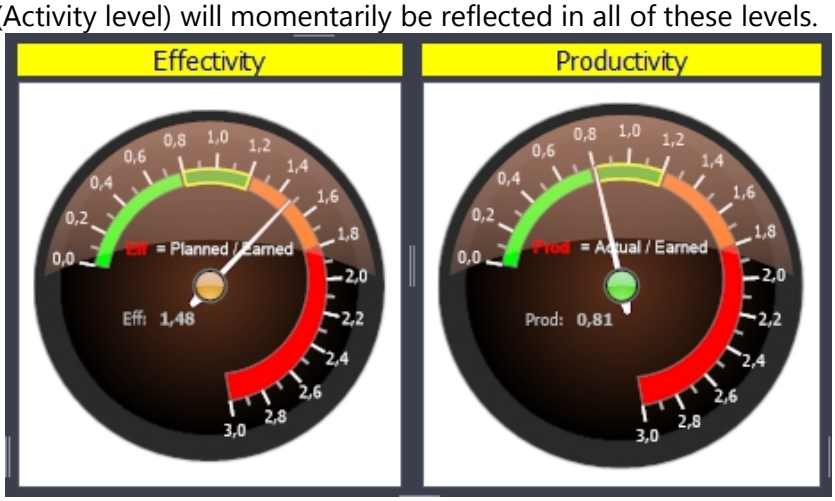
Drill down from Portfolio level to the lowest level data

This demo was created for a large EPC company with 4 distinct locations in Norway, and **each location had its own distinct server** containing the plans relating to that location. The challenge was how to achieve a **complete portfolio overview** of ALL project within the company.

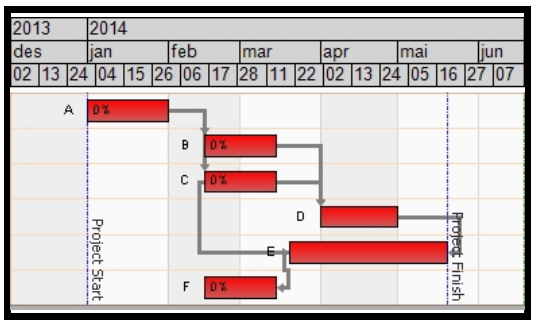
The topmost grid show a list of **locations**, and when one is selected, it shows (below it) the **plans** (networks) for that location (in addition to showing it on map in a browser).
If one of those plans are selected, then a list of **calculated KPIs** for each **discipline** will be shown in a grid...
... and if one of those disciplines were selected, a **historical overview** over the trend for that discipline would be shown in a chart.



The KPIs are shown at each of these levels separately (Location, Plan, Discipline), and any change made to underlying data (Activity level) will momentarily be reflected in all of these levels.



- Link Demo -



How to show relationships between objects

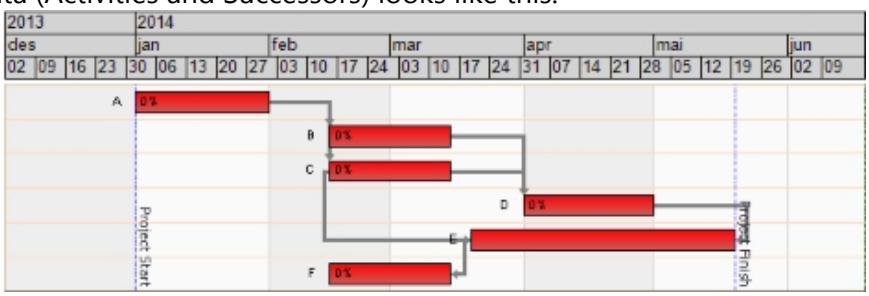
This is a very simple demo to show how "**links**" (relationships) **can be visually presented between object in a Gantt Chart**, typically this would be activities in a network.
Two separate sets of data needs to be loaded into Proteus to accomplish this:
1. **Activities** (ID, Description, Start and Finish dates)
2. **Successor** information that shows where a link starts and ends, and also what type of link it is (StartToStart, FinishToFinish, etc):

Activity ID	Successor ID	Link Type
A	B	FinishToStart
A	C	FinishToStart
B	D	FinishToStart
C	D	FinishToStart
C	E	StartToStart
D	E	FinishToFinish
E	F	StartToFinish

The result of these two sets of data (Activities and Successors) looks like this:

Drag a column header here to group by that column

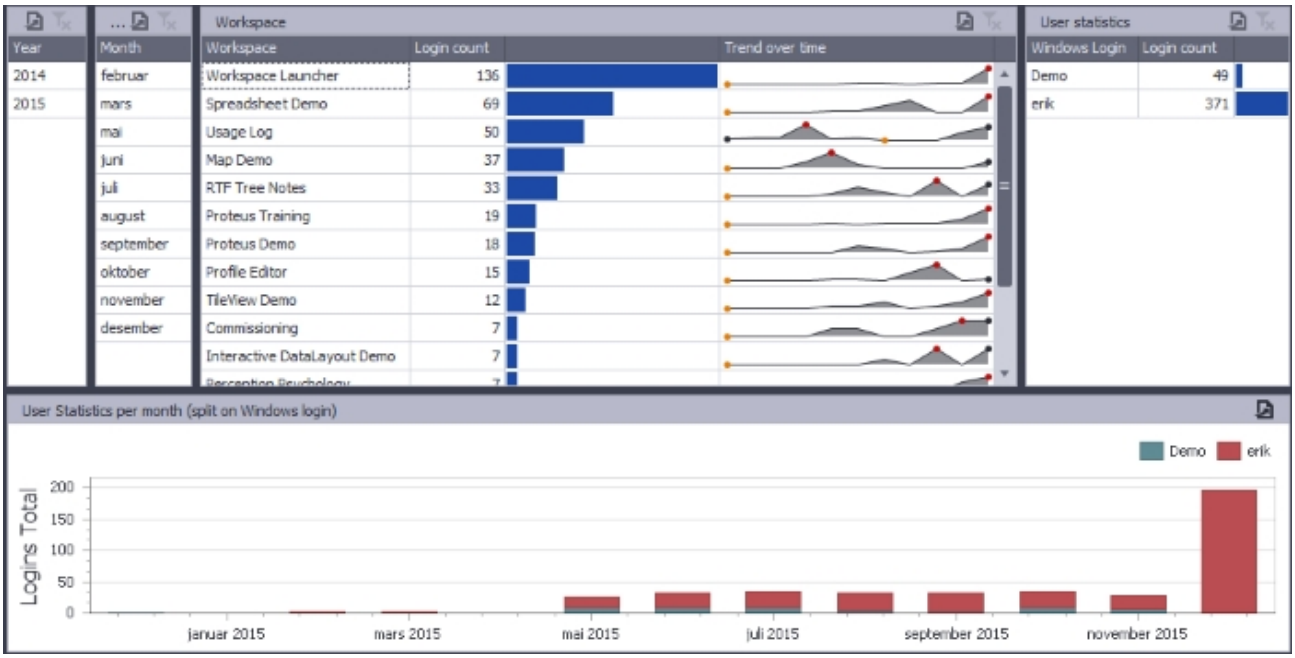
Activity ID	Description	Start	Finish
A	Activity A	01.01.2014	01.02.2014
B	Activity B	15.02.2014	15.03.2014
C	Activity C	15.02.2014	15.03.2014
D	Activity D	01.04.2014	01.05.2014
E	Activity E	20.03.2014	20.05.2014
F	Activity F	15.02.2014	15.03.2014



- Usage Log -

How customers can track their internal use of Proteus Workspaces

Every time Proteus is started, it make a call to the Proteus license server to check that the license used is valid and has not expired. As a policy, Promineo does not wish to log information that can be retraced back to a particular named user in the client organization. So Promineo is not able to report back to customer which named users use which workspaces, and a history of logins.
Therefore Proteus can maintain a **local log file** (LogUsage.txt) **in the root folder of the Repository**, and this can be the source for doing internal reports on Proteus usage using this Workspace:

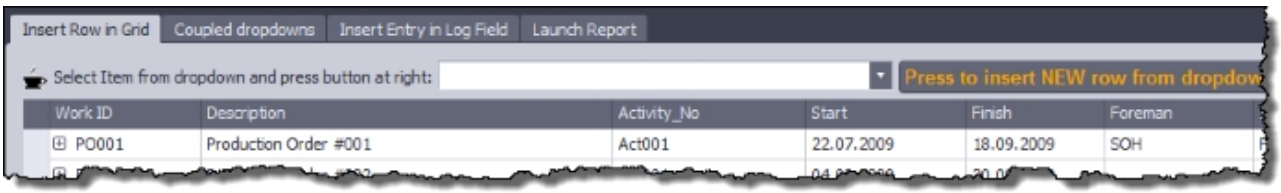


One of the grids shows the **number of logins for each Workspace**, and by **clicking** on one (or more) rows in the grid it will **act as a filter**, and the chart will then reflect the monthly usage for it (them).

- Interactive DataLayout Demo -

How to make a Proteus UI dynamic in a DataLayout

The **DataLayout component** in Proteus allows for design of a user interface (UI) at runtime, where controls can be positioned using drag and drop, and the final result stored in a named DataLayout layout (public or private).
Proteus allows **setting up "events"** for when a button is pressed, or when a control's value has been changed, and this Workspace is intended to be an "example guide" for how to achieve "typical tasks".
This demo is a bit "nerdy" in the sense that it is intended especially for users of **Proteus Configurator**, to go "behind the scenes" and see how such things can be done.



Typical Tasks:

"Insert Row in Grid"
When clicking a button, a new row is added to the grid and the text shown in first column is same as shown in dropdown's first column, and the second column shows the value from the second column of dropdown (not shown when item has been selected).

"How to duplicate a row of data"
The same tab as above also includes a second button that inserts a new row with cloned data from the selected row.

"Coupled dropdowns"
This example shows how a selection in one dropdown can limit what is shown in another dropdown.

"Insert entry in Log Field"
Inserts the text typed in textbox into a (locked - uneditable) chronological change log (larger textbox) with a timestamp and login of user that added the entry.

"Launch Report"
Press a button to lauch a specific report.

"Spell Checking"
Type some text in a textbox and press a button to do spell checking on it.