Report Designer

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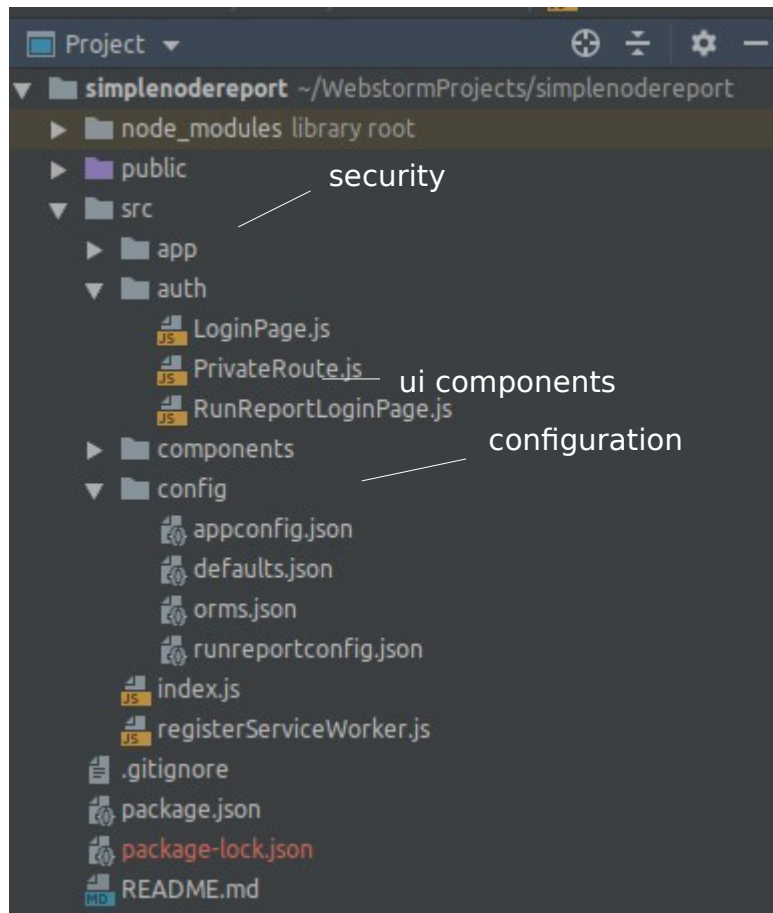
Report Designer

The Report Designer is a React web application designed to work in concert with the the Query Designer and Simple Node ORM. The Report Designer allows the user to create, save and run formatted WYSIWYG style reports backed by Query Designer queries.

Project Layout

The react/node project layout is shown below.

The project is available on github at:

Application Configuration

Application configuration is handled in 4 files:

- appconfig.json – This is main application configuration file. In this file you can setup display text for UI components, available colors for color selection controls and various defaults for the report designer functionality.

- defaults.json – this defines the default settings for a report – margins, font, orientation, document size etc.

- orms.json – this contains connection information for the Simple Node Orm installations that rge Report Designer can connect to.

- runreportconfig.json – this defines settings used by the application when a created report is run.

appconfig.json
Below is a code snippet from an example appconfig.json followed by a description of available settings:

```
{
 "textmsg": {
 "logintitletext": "Simple Node Report",
 "selectdata": "Select Data",
 "displayformat": "Display Format",
 "addreport": "Add Report",
 "addobject": "Add Report Object",
 "loaddocument": "Load Report",
 "deletedocument": "Delete Report",
 "setupmenuname": "Setup",
 "filemenuname": "File",
        .
        .
        .
"pageSections": ["header", "body", "footer"],
"defaultReportAuthenticator": "DefaultAuthorizer",
"zoomFactor": 1.25,
"wheelIncrement": 25,
"documentSizeNames": ["LETTER", "LEGAL", "4A0", "2A0", "A0", "A1", "A2", "A3", "A4",
"A5", "A6", "A7", "A8", "A9", "A10"],
"fonts": ["Arial", "Helvetica", "Times New Roman", "Courier New", "Courier", "Verdana"],
"fontSizes": [6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24,
   25, 26, 27, 28, 29, 30, 35, 40, 45, 50],
```

name	description
textmsg	Configurable display text applied to the UI components
pageSections	Report page section names/ids
defaultReportAuthenticator	Default javascript authenticator to for Report Designer access.
zoomFactor	Zoom factor used in the Report Designer to enable easier report design. Defaults to 1.25 which shrinks the report layout slight as compared to the live report.
wheelIncrement	Number of pixels to scroll when using the muse wheel to scroll vertically through the report design. Defaults to 25.
documentSizeNames	Array of supported document sizes - `"LETTER"`, `"LEGAL"`, `"4A0"`, `"2A0"`, `"A0"`, `"A1"`, `"A2"`, `"A3"`, `"A4"`, `"A5"`, `"A6"`, `"A7"`, `"A8"`, `"A9"`, `"A10"`
fonts	Array of supported fonts
fontSizes	Array of supported font sizes

fontWeights	Array of supported font weights
borderStyles	Array of supported standard css border styles
borderWidths	Array of support border widths
defaultPreferenceNames	Array of key values for default preference settings - `"marginLeft"`, `"marginTop"`, `"marginRight"`, `"marginBottom"`, `"fontFamily"`, `"font"`, `"fontSize"`, `"documentSize"`, `"reportName"`
reportObjectTypes	Array of report object components that can be added to a report - `"current date"`,`"dbdata"`, `"image"`, `"graph"`, `"label"`, `"link"`, `"email"`, `"page number"`, `"shape"`
shapes	Available shape components that can be added to a report - `"rectangle"`, `"ellipse"`, `"horizontal line"`, `"vertical line"`
dateFormats	Array of JSON objects defining available date formats - for example: `{"format": "mm/dd/yyyy", "example": "01/21/2019"},`
pageNumberFormats	Array of JSON objects defing available page number formats – for example: `{"key":"?.", "example": "1."},` When run "?" will be replaced by current page number
pageNumberLocations	JSON array of available locations where a page number object can be placed – for example: `{"key": "bm", "name": "bottom middle"},`

dbObjectDisplayFormats	Each report will be associated with a backing query. The "dbdata" report object is designed to display the results of the query and can be in 2 formats – grid or name/value by row. A grid is your standard table with rows and columns. Name/value by row displays individual row columns vertically in the format:
	
	    columnName1columnValue1
	    columnName2 columnValue2
	
	In addition, each of the types above can be used as a page break initiatiator. The displayObjectFormats entry defines these 4 conditions as an array of json objects. For example:
	<pre>{
	    "key": 1,
	    "display": "Grid"
	},
	{
	    "key": 2,
	    "display": "Grid with Page Break"
	},</pre>

defaultDbObjectDisplayFormat	This is the key of the dbObjectDisplayFormat to use by default – 1, 2, 3, 4
defaulttablecellpadding	Default padding used for the dbdata grid
selectedObjectBorder	Border used to indicate that a Report Object is selected in the designer – defaults to: `"solid 1px red"`
labelBorder	Border used to indcae alabel report object type – defaults to: `"dotted 1px darkBlue"`
activeObjectBorder	Border to indicate the report object under the current mouse position – defaults to: `"dotted 1px red"`
defaultReportObjectRect	Default size and location of a newly added report object if not overridden.
resizeMargin	Width in pixels of position check for mouse resize operations.
moveOffset	Width in pixels that a mouse must move before a drag operation will be initiated
moveCursor	Cursor to use when dragging an object – defaults to "grabbing"
columnResizeCursor	Cursor to use when resizing a grid column – default to: `"col-resize"`
rowResizeCursor	Cursor to use when resizing a grid row – defaults to: `"row-resize"`

pointToPixelFactor	Constant to use when converting point to pixels for font width calculations – defaults to: 1.333
pointToPixelHeightFactor	Constant to use when converting point to pixels for font height calculations defaults to: 1.75
defaultTextColor	Default report text color – defaults to: "black"
defaultBackgroundColor	Default report background color – defaults to: "white"
dbDataTotalsSepartor	When displaying a dbdata grid object summary totals can be display. This is the separtor used between the data and the totals – defaults to: `"solid 0.025in black",`
defaultFontWeight	Default report font weight – defaults to: 100
defaultColumnWidth	Default column width for dbdata grid column – defaults to: 75
keyMoveIncrement	Selecetd report objects can be moved by puskhing the arrow keys – this is the number of picles to move per click – defaults to 5
pageNumberPadding	Padding used when positioning the page number on the page. Page numbers are displayed on the top and bottom margin boundries.
defaultShape	Default shape for shape report objects – defaults to: "rectangle"
monthNames	Array of full month names used in the current date report object. `"January","February","March", "April","May","June","July","August","September", "October","November","December"`
colors	Array of available HTML colors to use in the color selection control.

defaults.json

```
{
    "reportName": "new report",
    "marginLeft": 0.5,
```

```
        "marginTop": 0.5,
        "marginRight": 0.5,
        "marginBottom": 0.5,
        "fontSize": 10,
        "orientation": "portrait",
        "fontFamily": "Arial,Helvetica,sans-serif",
        "font": "Arial",
        "documentSize": "LETTER"

    }
```

orms.json

Report Designer supports multiple ORM installations. An example configuration for available ORMs is shown below. defaultUsername and defaultPassword are optional, if they exists they will auto-populate the associated login dialog fields.

```
[
{
    "name" : "simple",
    "url"  : "http://localhost:8888/orm"
},
{
    "name" : "kfs",
    "url"  : "http://localhost:8888/kfsorm",
    "defaultUsername" : "user",
    "defaultPassword" : "pass"
}
]
```

runreportconfig.json

This is a subset of the appconfig.json used when a report is run:

```
{
    "textmsg": {
        "logintitletext": "Run Report",
        "reportlogin": "Login",
        "username": "Username:",
        "password": "Password:",
        "login": "Login",
        "passwordrequired": "Password is required",
        "usernamerequired": "Username is required",
        "authenticating": "Authenticating...",
        "runningreport": "Running <1> report...",
        "paramentrytitle": "Parameter Entry",
        "reportcancelled": "Report cancelled",
        "reportrunner": "Report Runner"

    },
    "pageSections": ["header", "body", "footer"],
    "defaultReportAuthenticator": "DefaultAuthorizer",
    "zoomFactor": 1.25,
    "wheelIncrement": 25
}
```

Getting Started

Login

Pull up the application in the browser, select the desired ORM, enter Username and Password if required and click **Login.**
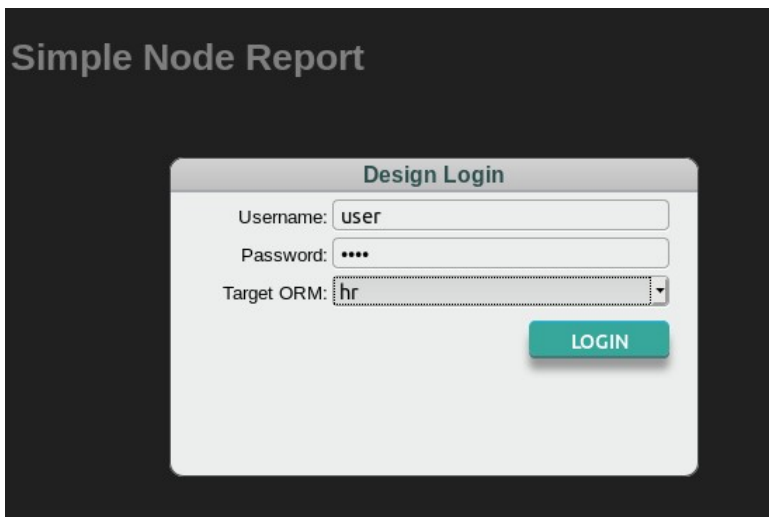
Once logged in you should see a screen similar to this:
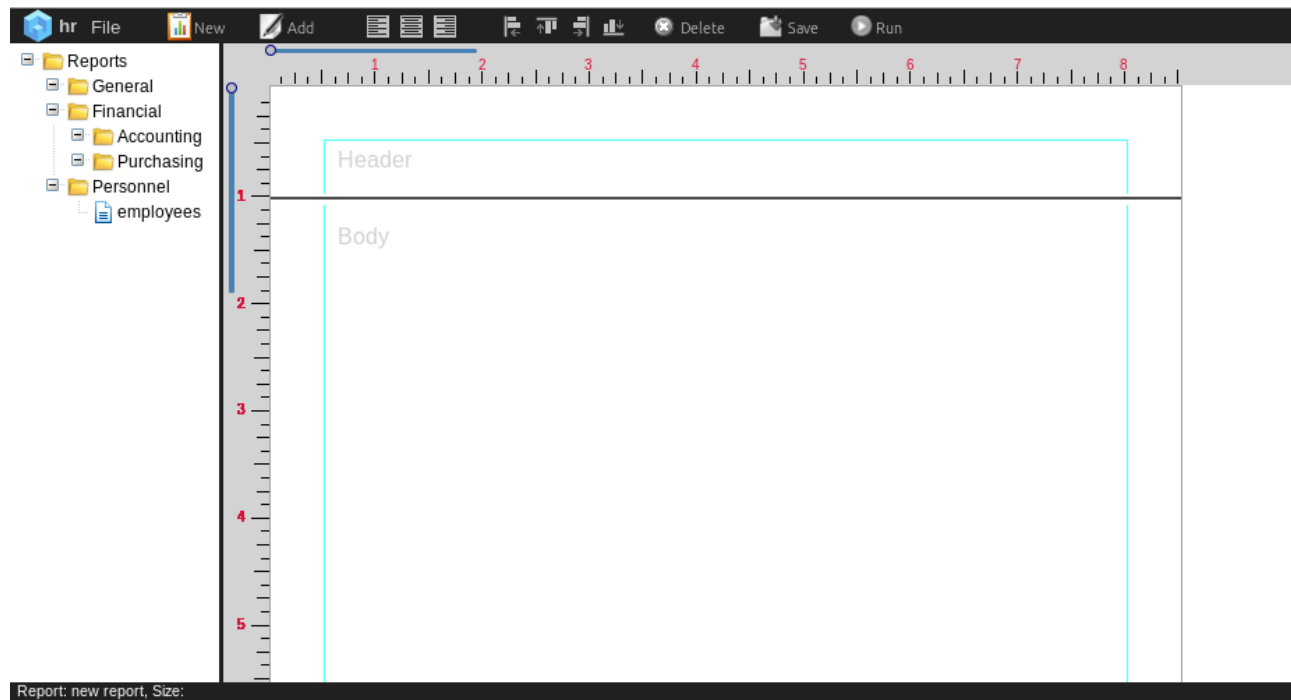
The left pane contains the document tree. The right pane contains the document design panel. Previously created report documents will display in the left pane - "employees" is an example.

Report Group Hierarchy
The group hierarchy shown in the left panel above is defined at the ORM server level in file report-document-groups.json. For the example above the definition is:

```
{
    "title": "Reports",
    "key" : "grp0",
    "isLeaf": false,
    "children": [
        {
            "title": "General",
            "key" : "grp1",
```

```
            "isLeaf": false
        },
        {
            "title": "Financial",
            "key" : "grp2",
            "isLeaf": false,
            "children": [
                {
                    "title": "Accounting",
                    "key" : "grp3",
                    "isLeaf": false
                },
                {
                    "title": "Purchasing",
                    "key" : "grp4",
                    "isLeaf": false
                }
            ]

        },
        {
            "title": "Personnel",
            "key" : "grp5",
            "isLeaf": false
        }

    ]
}
```

This parallels the query document group definitions as desribed in the query designer documentation. Implementation specific hierarchy defintions can be created as desired.

Setting Default Preferences

Click the **File** menu item on the application toolbar the click **Preferences** from the dropdown menu to show the Default Settings panel.
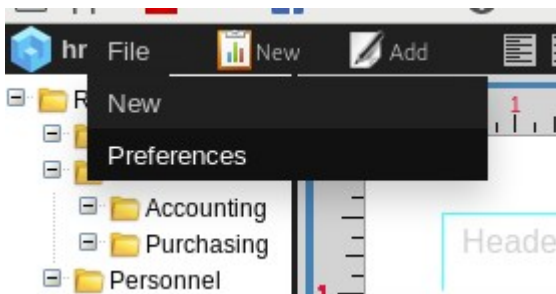
Set your desired default settings. These are what will pre-populate the report settings when you create a new report.

Default Settings

Left Margin: 0.5

Top Margin: 0.5

Right Margin: 0.5

Bottom Margin: 0.5

Font Family: Arial,Helvetica,sans-serif

Font: Arial

Font Size: 10
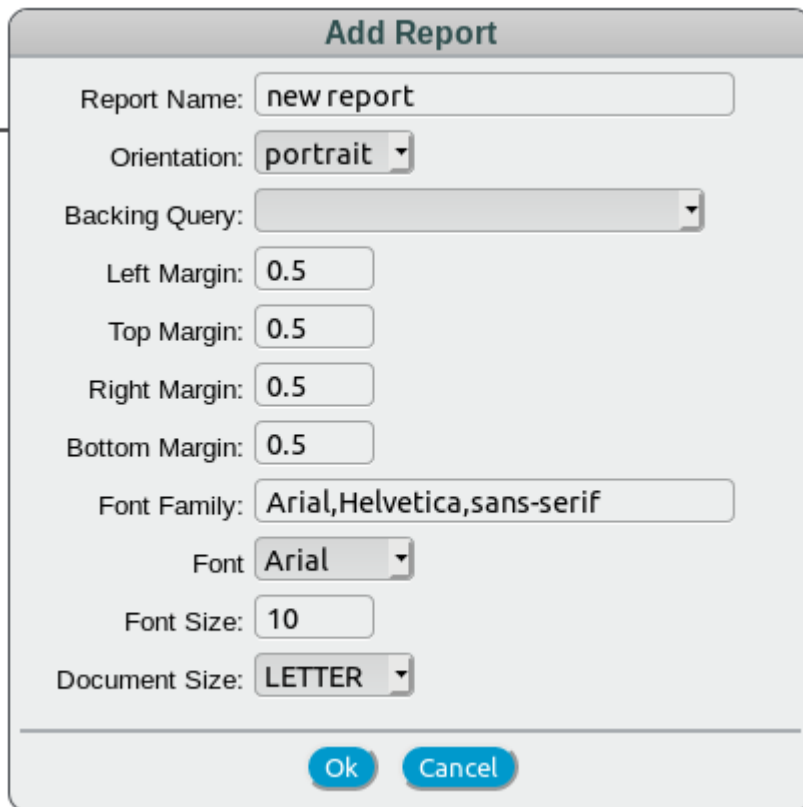
Document Size: LETTER

Ok   Cancel

Create a New Report

From the application toolbar click the **New** report icon
to display the Add Report panel:

Enter an appropriate report name and select a backing query.

Make any other desired modifications to the report format and click **Ok** to start designing a new report.

Common Report Object Opertions

When designing a report there a some common operations that select, move, resize and edit report objects. For this discussion we will use the "example label" in the header section shown below. Note that this label has the defined label border. This border is for development purposes only to identify labels and will not display in active report.
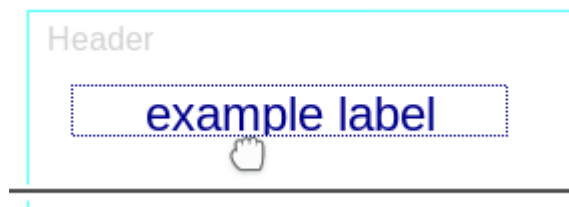
Select an Object

To select a report object press the **CTRL** key and left click the object with the mouse. The object will display the **selected** (defaults to red) border. To deselect the object **CTRL** click again. T deselect all selected objects hit the **ESC** key.

Resize an Object

Report objects can be resized in 2 ways:
1. Hover the mouse over a border and when the resize cursor displays, drag the border

2. Selected objects can be resized by holding down **shift** key and pressing the **arrow** keys. Resizing will be applied to all selected objects.

Moving and Object

To move a report object the user can drag it with the mouse of select an object and use the **arrow** keys

Editing an Object

To edit or delete an existing report object, right click on the object and select the desired option from the popup menu.

example label

Edit Report Object
Bring to Front
Send to Back

Delete Report Object
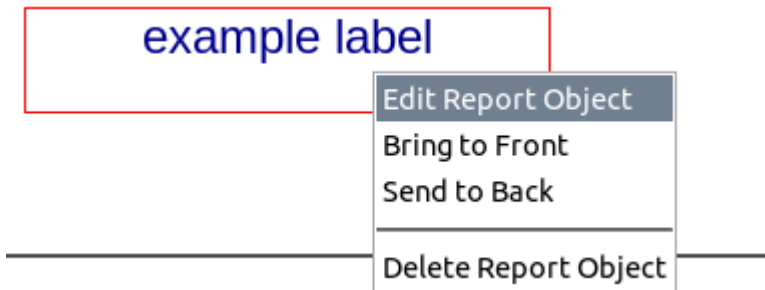
Text Align Multiple Objects

To set the text alignment on multiple objects, select the target objects:

Header

example label1

example label2

example label 3
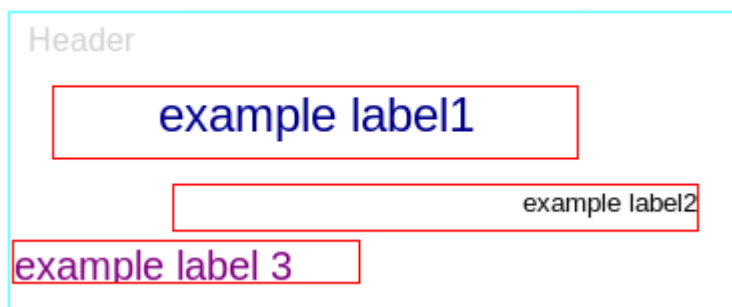
then click the desired alignment icon on the tool bar.

Header

example label1

example label2

example label 3
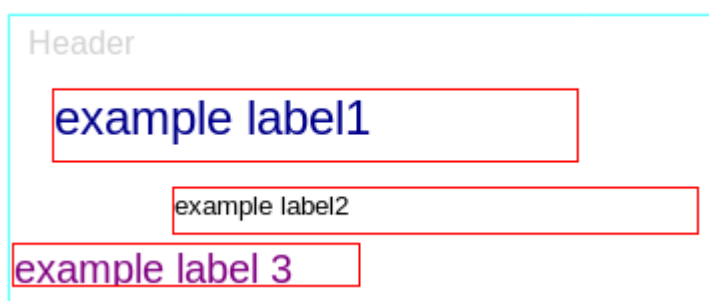
Align Multiple Objects

To align multiple objects, select the desired target objects. The selected objects will align to the associated border of the first selected object. Click the desired object align icon:

Header

my label

new label

label3

Header

my label

new label

label3

Header

my label

new label

label3

align selected objects left

Header

my label

new label

label3
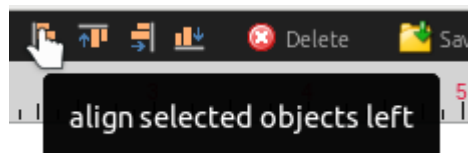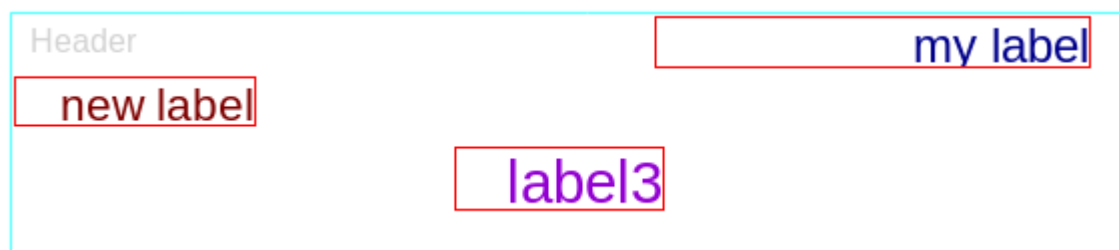
The Report Design Panel

After completing the steps listed in the previous section your are presented with an enabled report design panel formatted based on your selections. Key design panel components are desribed below.

Application Toolbar

The application toolbar provides the following functionality:

- Add new report
- Add report objects
- Text align on selected report objects
- Report object align
- Delete selected report objects
- Save report
- Run report
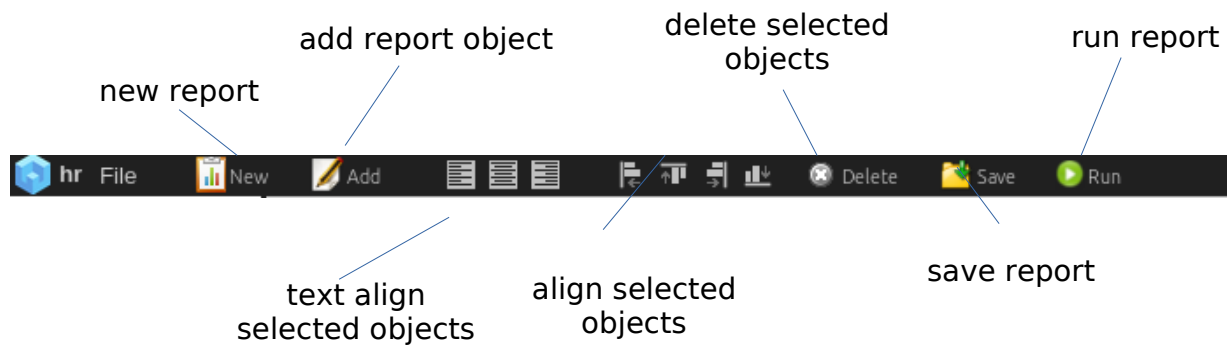
Page Sections

The design panel is broken into 3 page sections – header, body and footer. These sections are resizable by moving the section separtor.
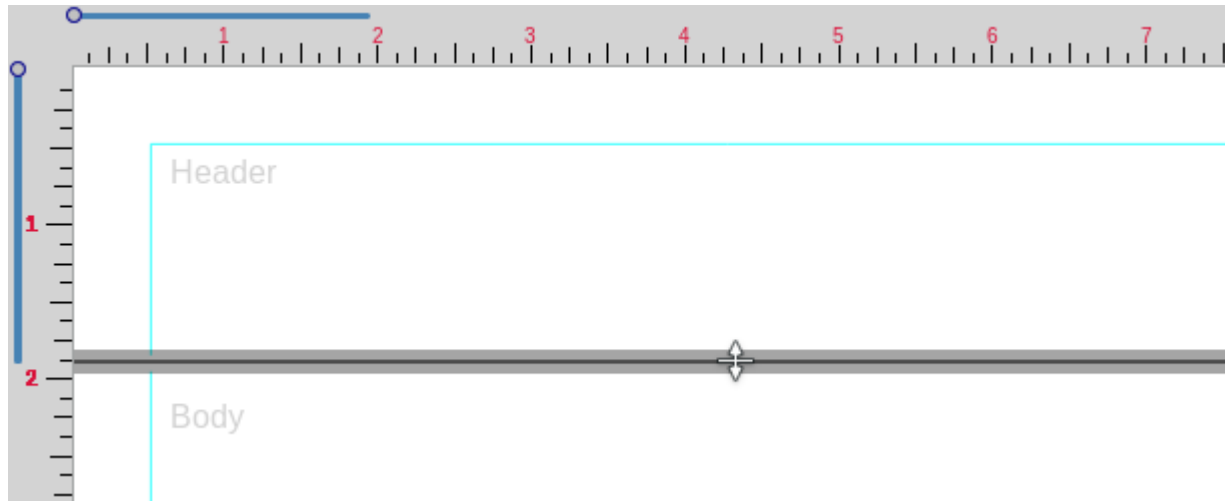
Page Design Scroll

Use the vertical and horizontal design scroll controls to scroll the report design:
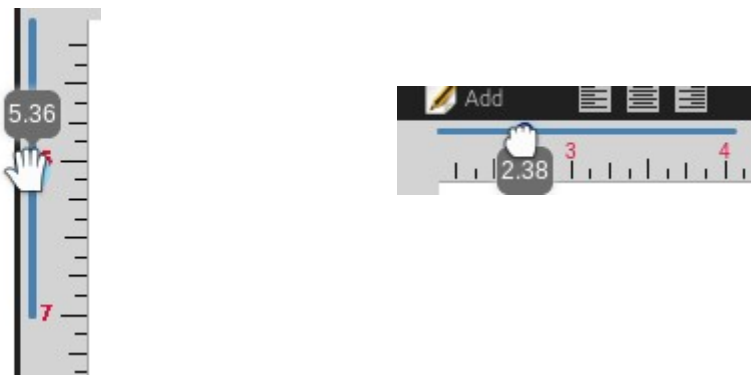
The mouse wheel can also be used fro vertical scrolling.

Adding Report Objects

To add a report click the add report object icon
and select the desired object type from
the displayed list:
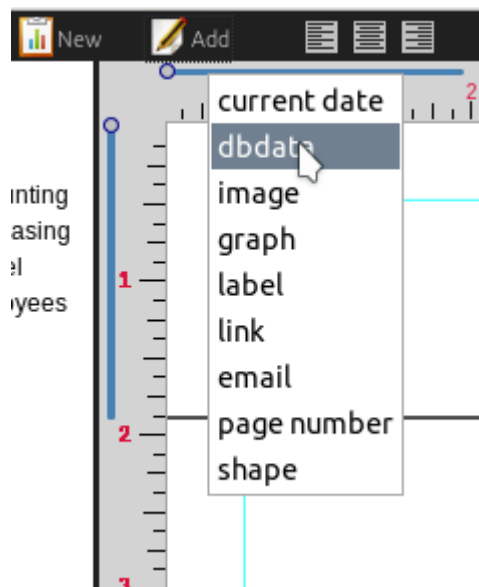
Current Date

To add a current date object to the report select **current date** from the add object dropdown.

Select the report section, date format and set the font as desired ten click **Ok** to add to the report.

The current report run date will be inserted into this object.

DB Data

The dbdata report object is the report link to the backing query result data. An example of the object setup panel is shown below:

The **Select Data** panel above allows the user to select, order and format result set data for the report object. By default, all available columns in the backing query are selected. The user can click the **Display All** and **Clear All** buttons to change all the column selections. Individual columns can be selected and deselected by clicking the **Show** checkbox. Column names are shown next to Show checkbox. The format will show the path to the column so more complex data from child objects are shown as an arrow delimited string – for example:

106. ☑ **Show:** manager->department->manager->manager->lastName

⬇ Text Align: `left` ▾   Special Handling: `none` ▾

Selected column order can be adjusted by clicking the green arrows. **Display Format** allows the user to select how the data will be displayed on the report and how to control page breaks.

Grid with Page Break ▾

| Grid |
| Grid with Page Break |
| Name/Value Pairs by Row |
| Name/Value Pairs by Row with Page Break |
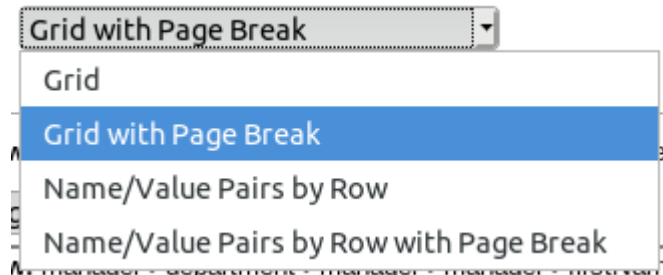
The selections are descibed below:
- **Grid** – displays a standard column/row table with the selected result set data. Column and rows are resizable via mouse.
- **Grid with Page Break** – displays column/row table and forces a page break when the report object display area is full. Column and rows are resizable via mouse.
- **Name/Value Pairs by Row** – displays a vertical Name Value list of row data, each Name and value is an invidual object which can be moved and resized as desired.
- **Name/Value Pairs by Row with Page Break** - displays a vertical Name Value list of row data and forces a page break after each row.

Below are examples of the Grid an Name/Value objects:

Body

employeeId	firstName	lastName	email	phoneNumber
r0c0	r0c1	r0c2	r0c3	r0c4
r1c0	r1c1	r1c2	r1c3	r1c4
r2c0	r2c1	r2c2	r2c3	r2c4
r3c0	r3c1	r3c2	r3c3	r3c4
r4c0	r4c1	r4c2	r4c3	r4c4
r5c0	r5c1	r5c2	r5c3	r5c4
r6c0	r6c1	r6c2	r6c3	r6c4
r7c0	r7c1	r7c2	r7c3	r7c4
r8c0	r8c1	r8c2	r8c3	r8c4
r9c0	r9c1	r9c2	r9c3	r9c4
r10c0	r10c1	r10c2	r10c3	r10c4

Body

employeeId	employeeId
firstName	firstName
lastName	lastName
email	email
phoneNumber	phoneNumber

Special Handling can be applied to report columns. For numeric fields the following options are available:

If selected, the numeric options will display on a Grid object in a totals line at the added at the end of the grid. The option will not be applied to the Name/Value pairs display type.

For text column types the following options are available:

If selected, the text-based options will apply to the displayed data. For email and link options the text will used for an html anchor tag. For the image option, it will be assumed that the text is an image url and an html image tag will be created.

The **Font** and **Border** tabs allow the user to set header and data font and border properties and the displayed results:

Select Data   Font   Border

Header Font: Data Font:
Name: Arial   Name: Arial
Size/Weight: 10 ▾ 900 ▾   Size/Weight: 10 ▾ 100 ▾
Font Color: [■]   Font Color: [■]
Background Color: [ ]   Background Color: [ ]
    ☐ Italic ☐ Underlined   ☐ Italic ☐ Underlined
        example text   example text
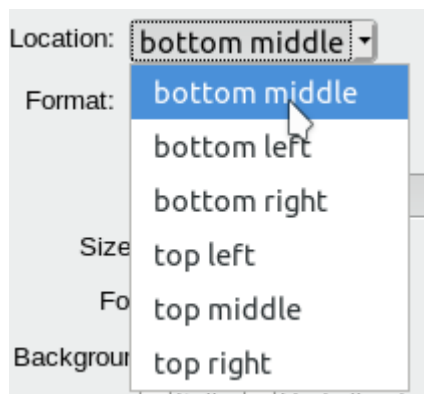
Select Data   Font   Border

Header Border: Data Border:
Style: solid ▾   Style: solid ▾
Width: 2 ▾   Width: 1 ▾
Border Color: [ ]   Border Color: [■]
    ☑ left ☑ Top   ☑ left ☑ Top
    ☑ right ☑ Bottom   ☑ right ☑ Bottom
Example: [   ]   Example: [   ]

Image
Select **image** from the report object popup menu to add an image to the report.

Select target page location, enter image URL and Alt text and click Ok to place image object on the report. The checkboxes support the following:

- Retain Aspect Ratio – if checked the image will retain the original aspect ratio and fit the report object rectangle based on the max/min sizes required.
- Size to Content – if checked the image will be placed in the report at it's original size. If the report object size is smaller than the image size then only a portion of the image will be visible. If not checked the image will be sized to the report object size.

Graph
This functionality is currently under construction and will be in a future release.

Label
To create a label object select **label** from the report object dropdown menu:

Link

To create a link select **link** from the report object dropdown:

Select target location and desired font format. If you would like the contents of the URL to display in new tab when clicked, check the **Show in New Tab** checkbox.

Email
Email is very similar to the link example above. Select **email** from the report object dropdown and choose your desired setting.

Page Number
To add a page number to report select **page number** from the report object dropdown:

Select the page number location, format and desired font format then click **Ok** to add to the report. Available locations and formats are shown below.:
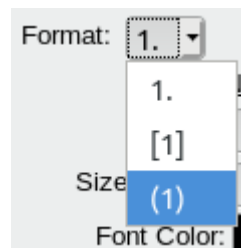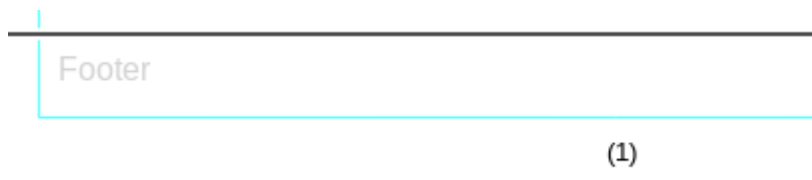
When the report is run the current page number will be placed in the object.
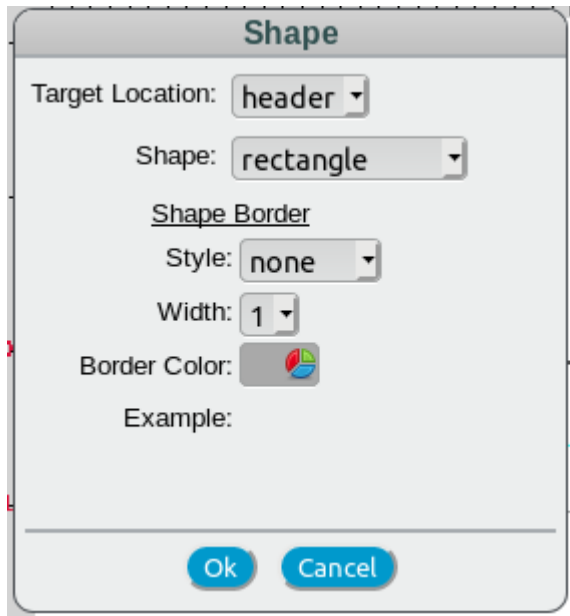
Shape

To add a shape to the report select **shape** from the report object dropdown:
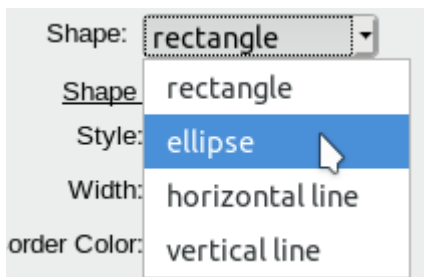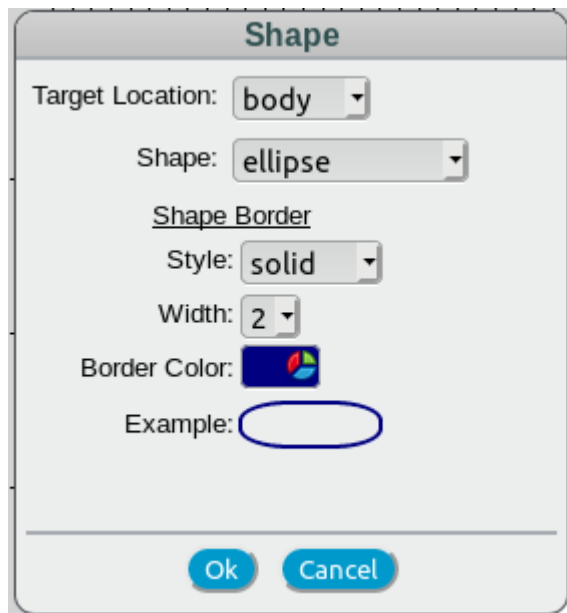
Selecet target location, desired shape and font format then click **Ok** to add to report.

The available shapes are shown below:
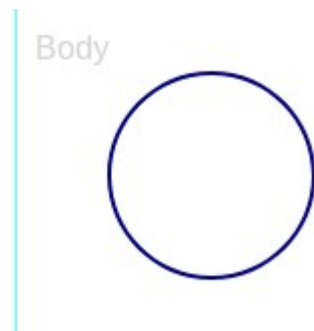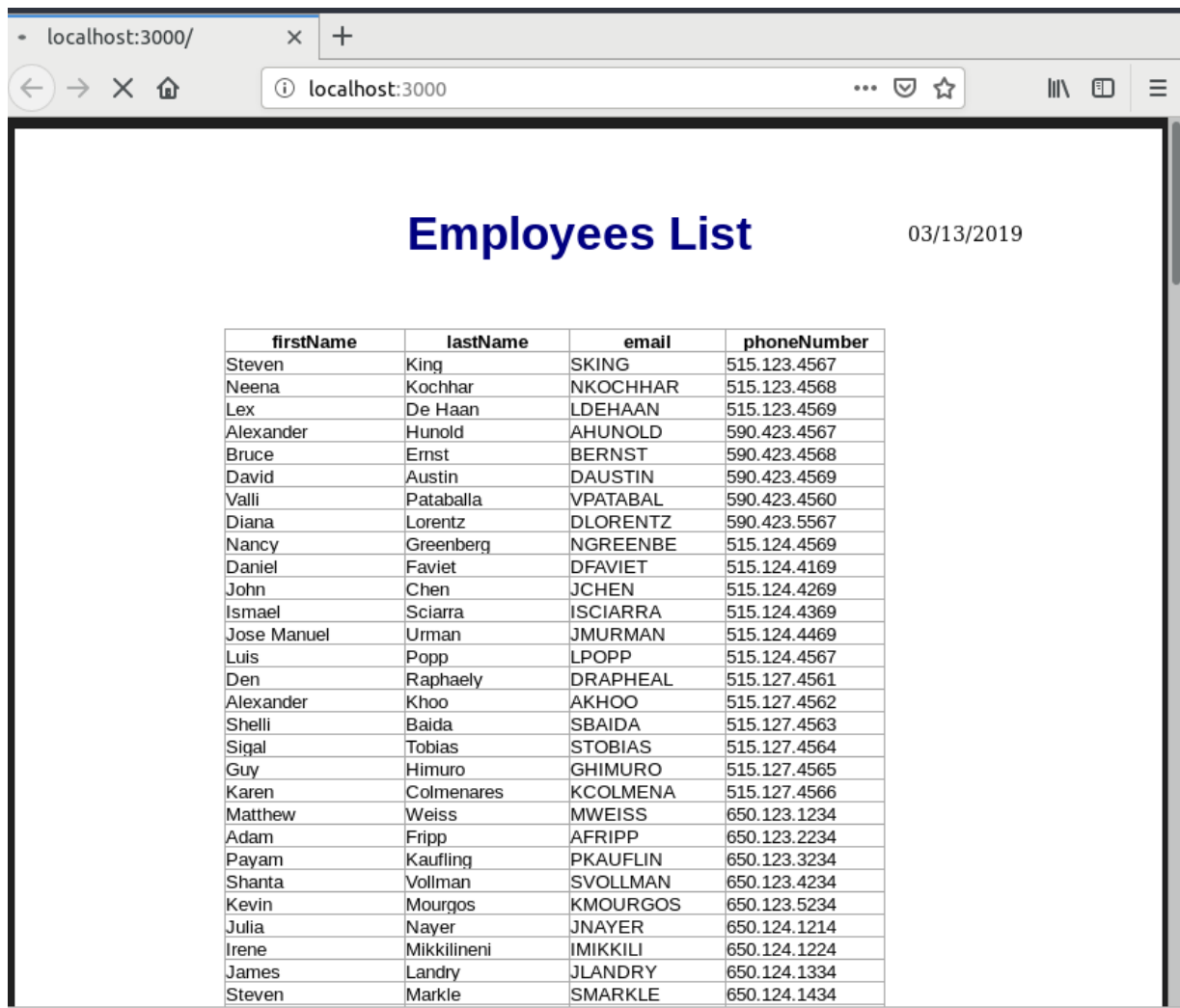
Running the Report

For test purposes the desgned report can be run from the designer by clicking the run icon on the toolbar.   So if we design a report something like this:
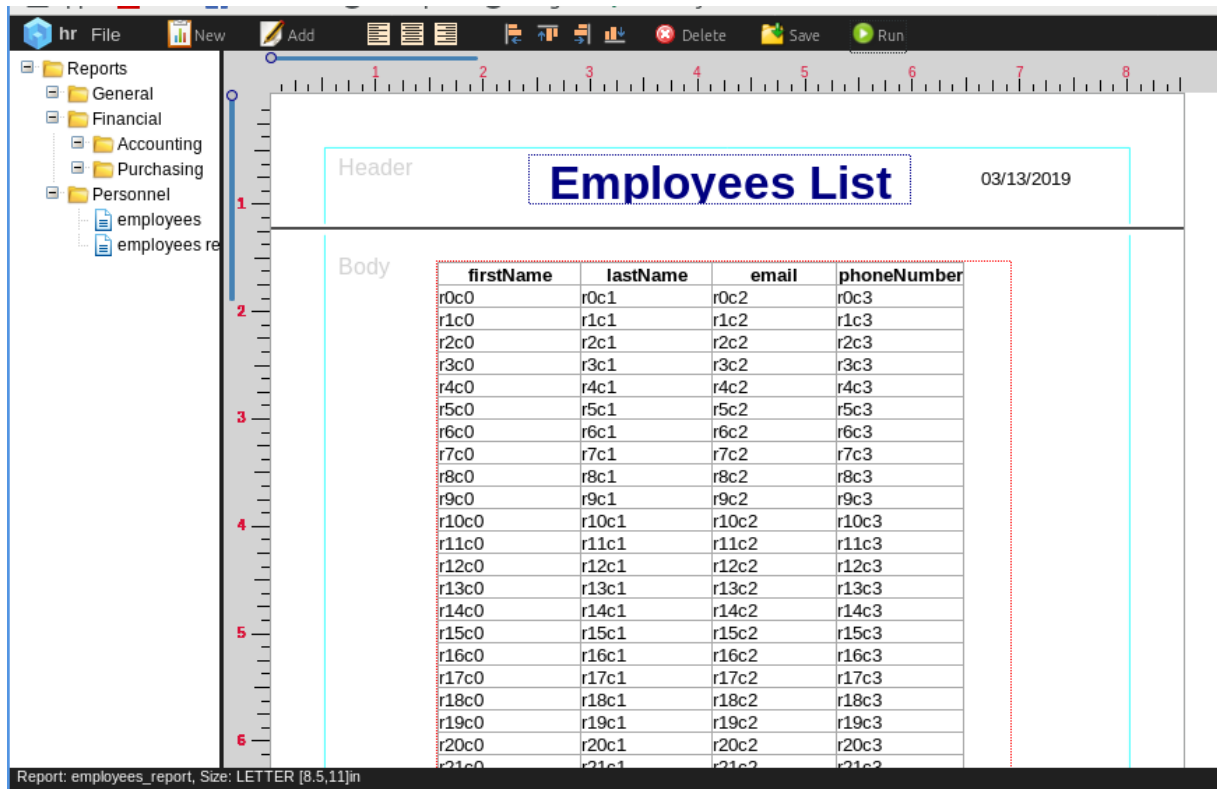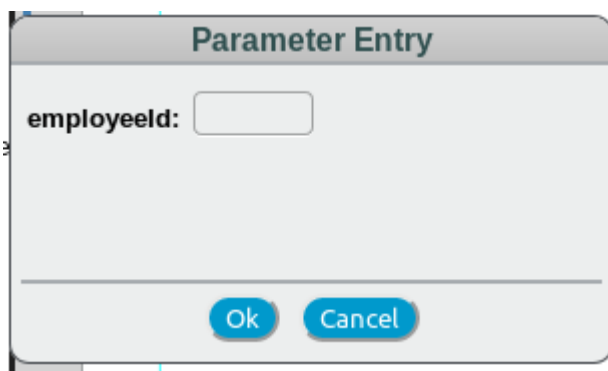
and click the run button we will get something like this:

If input data is required an input panel will display:

To run reports standalone you would call a url similar to the following:

http://<reportserver>/runreport/<ormid>.<groupname>.<reportname>
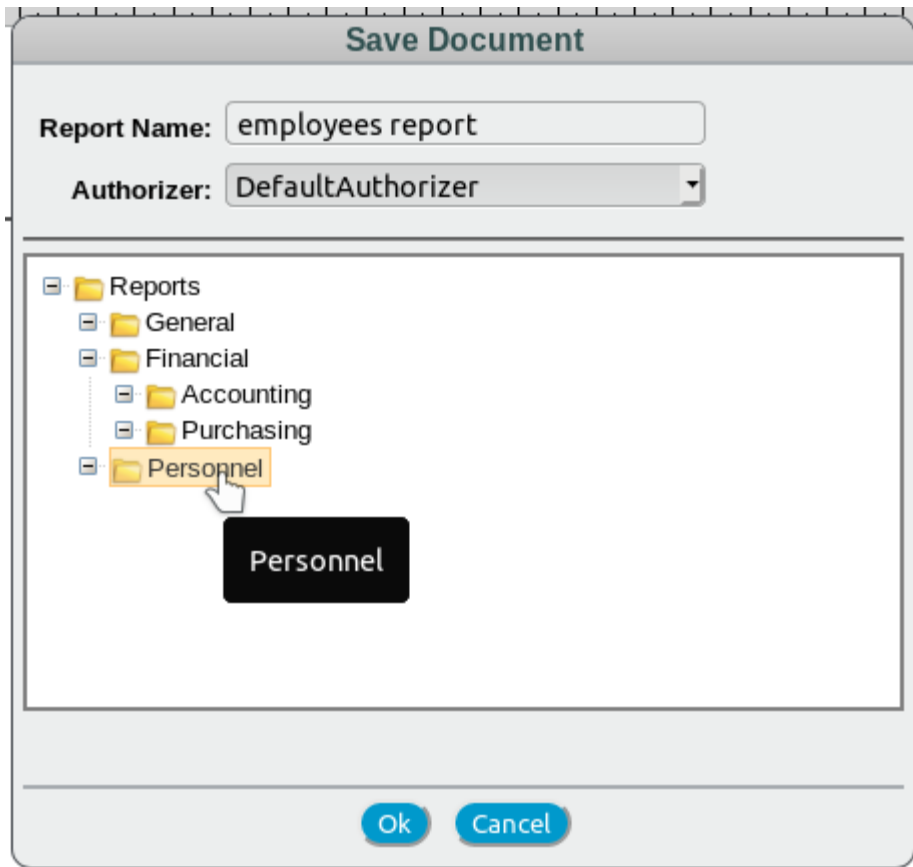
for example:

User login and/or parameter entry panels will display if required.

Saving a Report

To save a report click the **save** icon to display the **Save Document** panel:

Update report name and authorizer if desired then select group for the report and click **Ok** to save.

Load an Existing Report

To load an existing report left click the desired report in the report tree and select **Load Report** from the popup menu: