



Report Designer

Rob Tucker
04/11/2019

Contents

Project Layout.....	4
Application Configuration.....	4
appconfig.json.....	5
defaults.json.....	8
orms.json.....	8
runreportconfig.json.....	9
Getting Started.....	9
Login.....	9
Report Group Hierarchy.....	10
Setting Default Preferences.....	11
Create a New Report.....	12
Common Report Object Operations.....	13
Select an Object.....	13
Resize an Object.....	13
Moving an Object.....	13
Editing an Object.....	14
Text Align Multiple Objects.....	14
Align Multiple Objects.....	14
The Report Design Panel.....	16
Application Toolbar.....	16
Page Sections.....	16
Page Design Scroll.....	16
Adding Report Objects.....	17
Current Date.....	17
DB Data.....	18
Image.....	22
Graph.....	23
Label.....	23
Link.....	24
Email.....	25
Page Number.....	25
Shape.....	27
Running the Report.....	28
Saving a Report.....	30

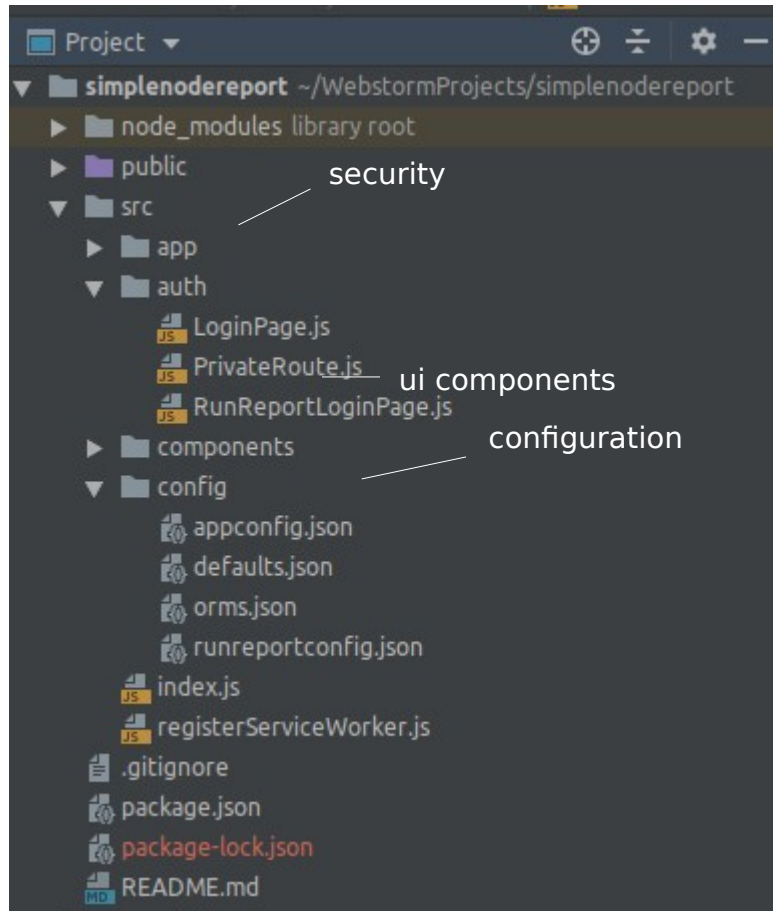
Load an Existing Report.....	30
------------------------------	----

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:

<https://rbtucker@github.com/rbtucker/simplenodereport.git>

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 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 the Report Designer can connect to.
- runreportconfig.json – this defines settings used by the runtime report.

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 in the designer.
pageSections	Report page section names/ids
defaultReportAuthenticator	Default javascript authenticator 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 slightly as compared to the live report.
wheelIncrement	Number of pixels to scroll when using the mouse wheel for verical scrolling the 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 font names
fontSizes	Array of supported font sizes
fontWeights	Array of supported font weights

borderStyles	Array of supported standard css border styles
borderWidths	Array of supported 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: <code>{"format": "mm/dd/yyyy", "example": "01/21/2019"},</code>
pageNumberFormats	Array of JSON objects defining available page number formats - for example: <code>{"key": "?", "example": "1."},</code> 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: <code>{"key": "bm", "name": "bottom middle"},</code>
dbObjectDisplayFormats	<p>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:</p> <p style="margin-left: 40px;">columnName1 columnValue1 columnName2 columnValue2</p> <p>In addition, each of the types above can be used as a page break initiator. The displayObjectFormats entry defines these 4 conditions as an array of json objects. For example:</p> <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 indicate a label 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"
dbDataTotalsSeparator	When displaying a dbdata grid object summary totals can be displayed. This is the separator used between the data and the totals - defaults to the a line: "solid 0.025in black",
defaultFontWeight	Default report font weight - defaults to: 100
defaultColumnWidth	Default column width for dbdata grid column - defaults to: 75

keyMoveIncrement	Selected report objects can be moved by using the arrow keys – this is the number of pixels 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 boundaries.
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

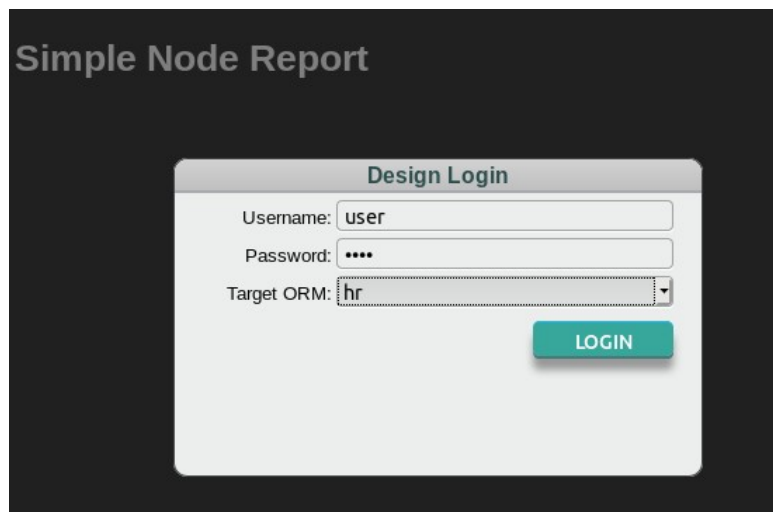
This is a subset of the appconfig.json used when a live report is run:

```
{
  "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
}
```

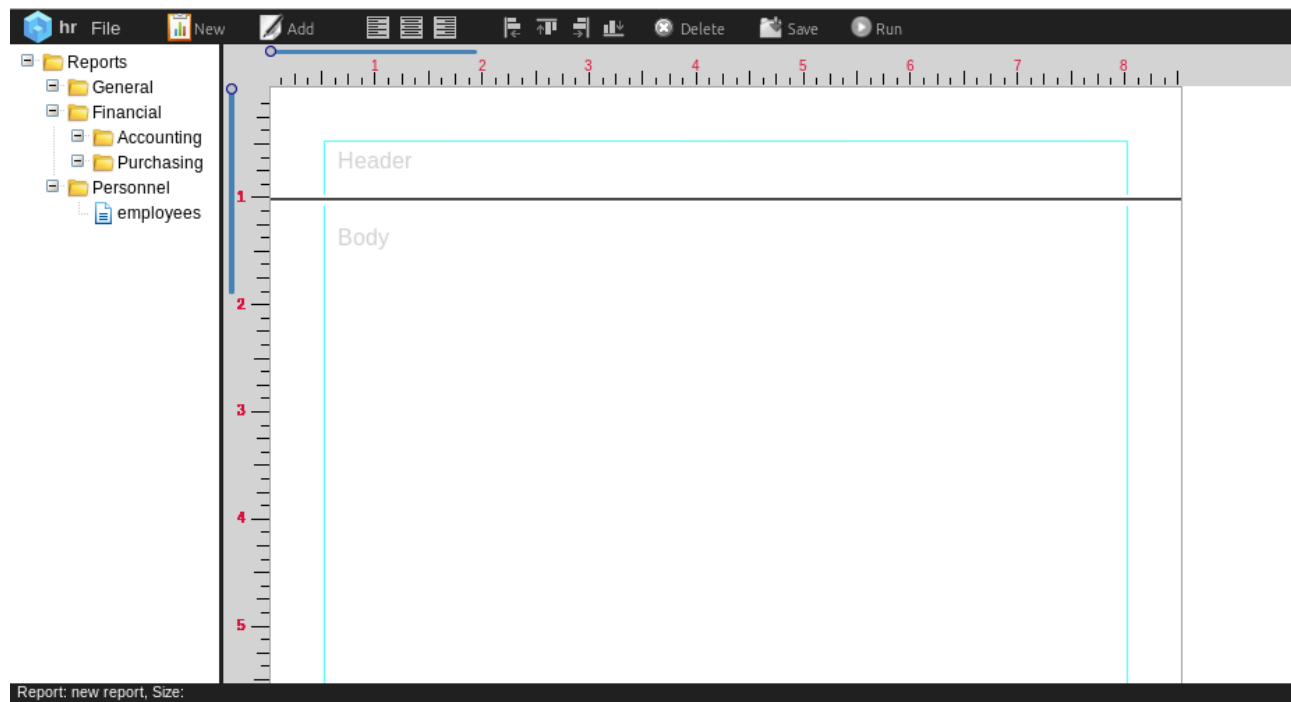
Getting Started

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
        }
      ]
    }
  ]
},
{
```

```

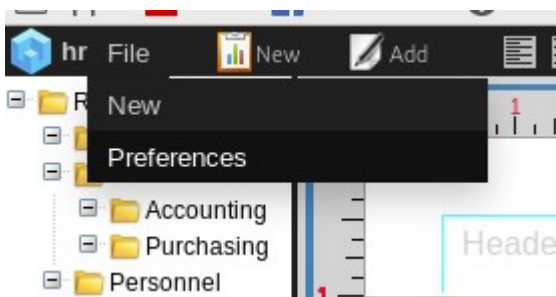
        "title": "Personnel",
        "key" : "grp5",
        "isLeaf": false
    }
}
]
}

```

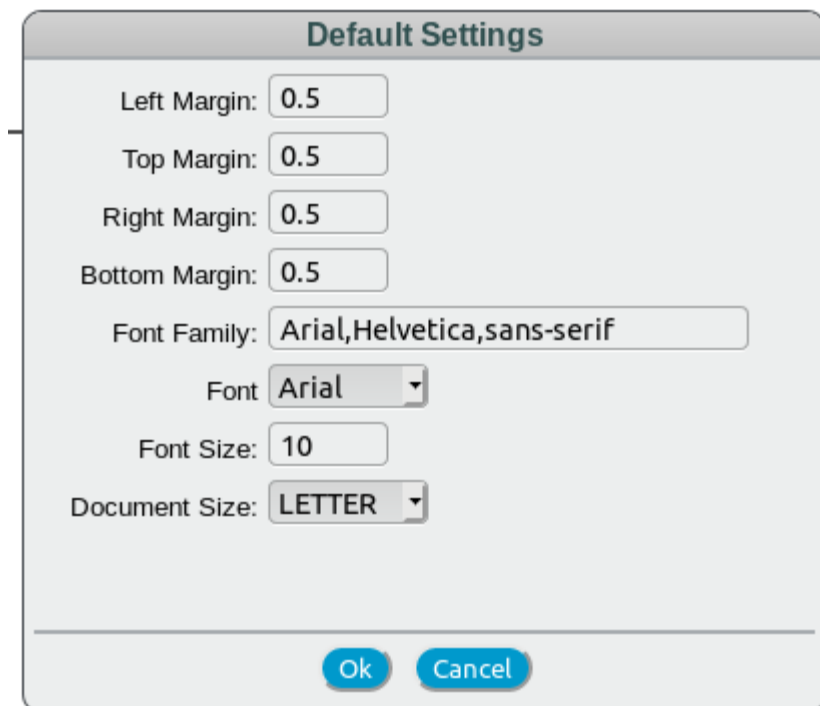
This parallels the query document group definitions as described in the query designer documentation. Implementation specific hierarchy definitions can be created as desired.

Setting Default Preferences

Click the **File** menu item on the application toolbar then 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.

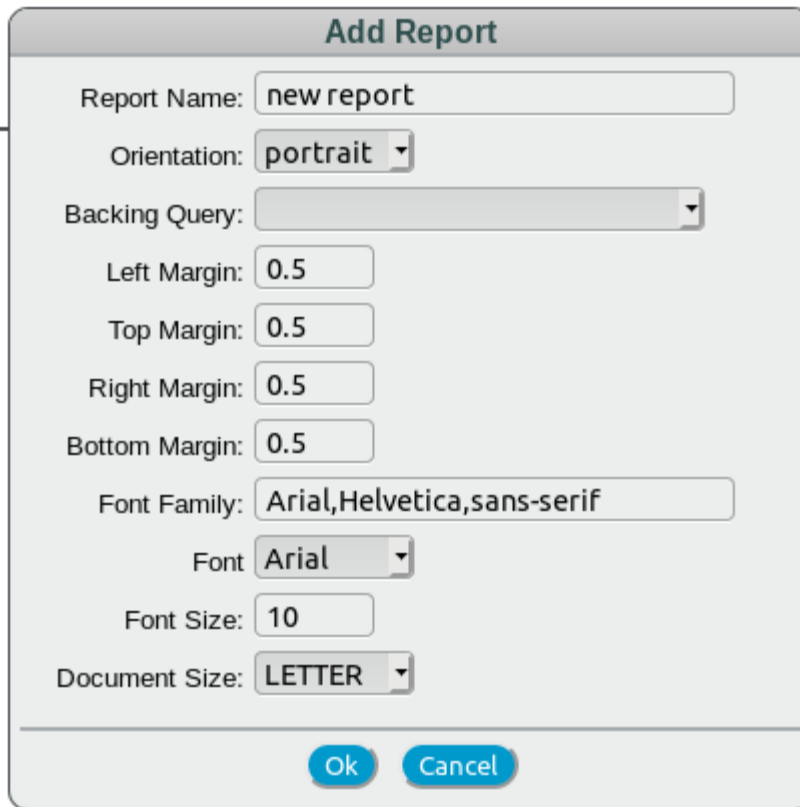


Create a New Report

From the application toolbar click the **New** report icon



to display the Add Report panel:

A screenshot of the 'Add Report' dialog box. It contains several input fields and dropdown menus. The 'Report Name' field is filled with 'new report'. The 'Orientation' dropdown is set to 'portrait'. The 'Backing Query' dropdown is empty. The 'Left Margin', 'Top Margin', 'Right Margin', and 'Bottom Margin' fields are all set to '0.5'. The 'Font Family' field is filled with 'Arial,Helvetica,sans-serif'. The 'Font' dropdown is set to 'Arial'. The 'Font Size' field is filled with '10'. The 'Document Size' dropdown is set to 'LETTER'. At the bottom, there are 'Ok' and 'Cancel' buttons.

Add Report

Report Name:

Orientation:

Backing Query:

Left Margin:

Top Margin:

Right Margin:

Bottom Margin:

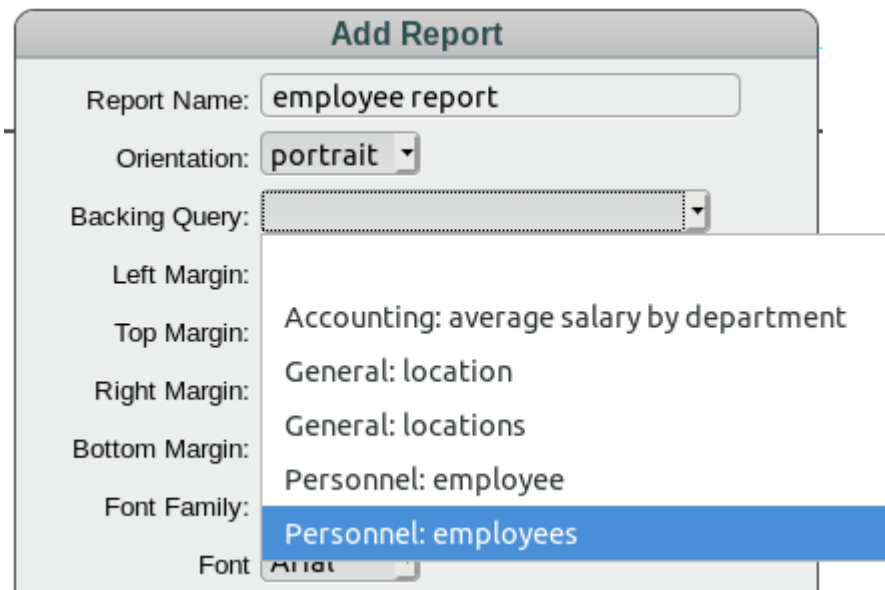
Font Family:

Font:

Font Size:

Document Size:

Enter an appropriate report name and select a backing query.

A screenshot of the 'Add Report' dialog box, similar to the one above, but with the 'Backing Query' dropdown menu open. The 'Report Name' field is filled with 'employee report'. The 'Orientation' dropdown is set to 'portrait'. The 'Backing Query' dropdown is open, showing a list of queries: 'Accounting: average salary by department', 'General: location', 'General: locations', 'Personnel: employee', and 'Personnel: employees'. The 'Personnel: employees' option is highlighted in blue. The 'Left Margin', 'Top Margin', 'Right Margin', and 'Bottom Margin' fields are all set to '0.5'. The 'Font Family' field is filled with 'Arial,Helvetica,sans-serif'. The 'Font' dropdown is set to 'Arial'. The 'Font Size' field is filled with '10'. The 'Document Size' dropdown is set to 'LETTER'. At the bottom, there are 'Ok' and 'Cancel' buttons.

Add Report

Report Name:

Orientation:

Backing Query:

Left Margin:

Top Margin:

Right Margin:

Bottom Margin:

Font Family:

Font:

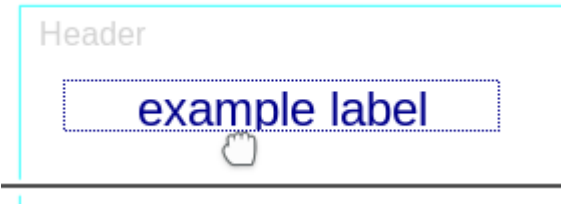
Font Size:

Document Size:

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

Common Report Object Operations

When designing a report there are 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 and is used 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. To deselect all selected objects press 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.

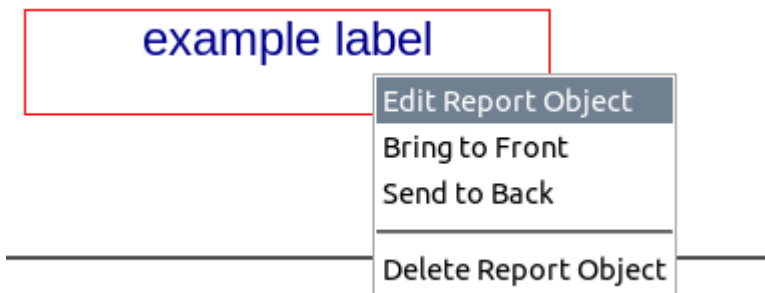


Moving an Object

To move a report object drag it with the mouse. A selected object can be moved with the **arrow** keys.

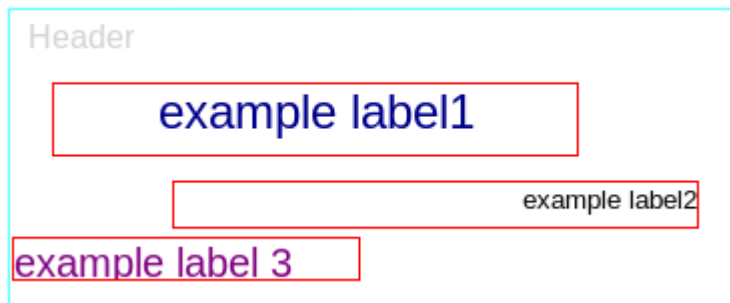
Editing an Object

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



Text Align Multiple Objects

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

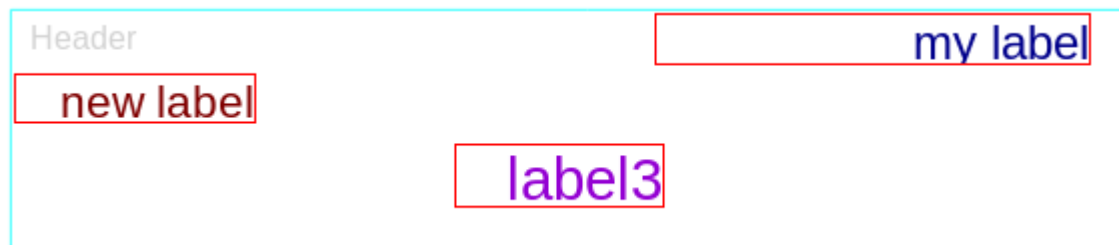


then click the desired alignment icon on the tool bar.



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:



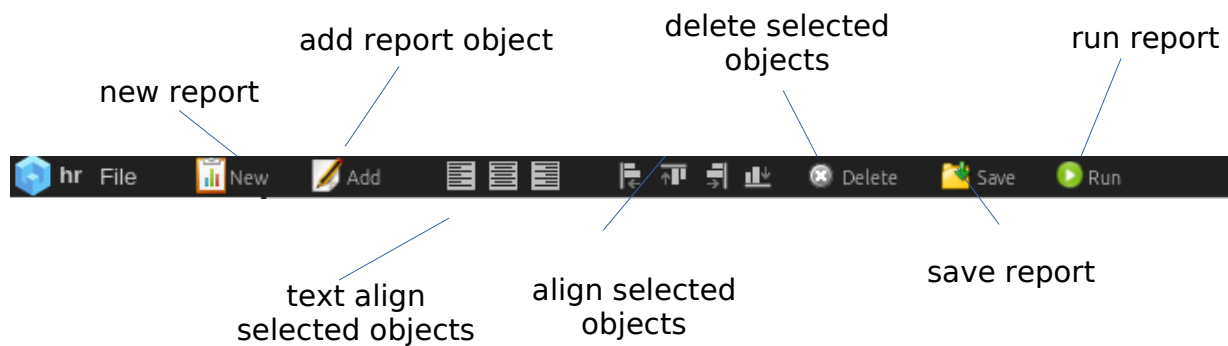
The Report Design Panel

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

Application Toolbar

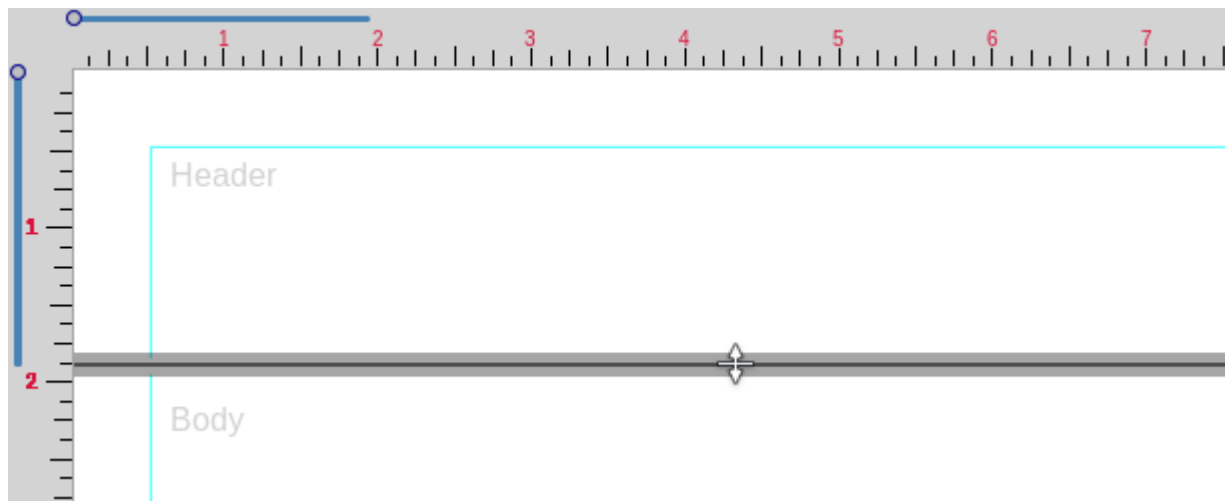
The application toolbar provides the following functionality:

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



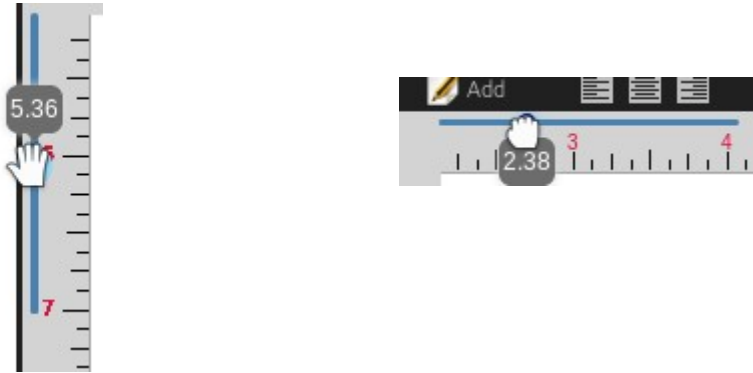
Page Sections

The design panel is broken into 3 page sections - header, body and footer. These sections are resizable by moving the section separator.



Page Design Scroll

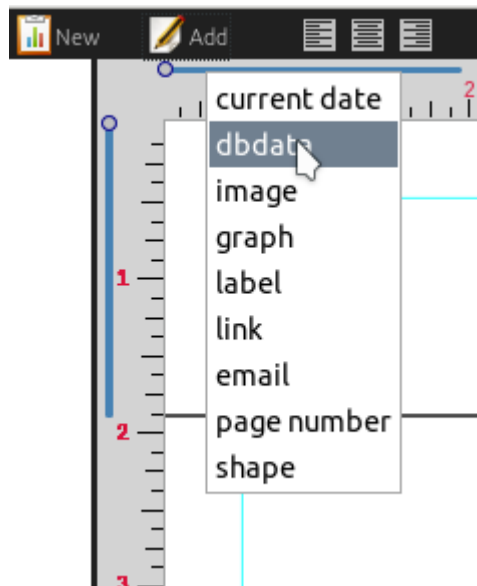
Use the vertical and horizontal design scroll controls to scroll the report design:



The mouse wheel can be used for vertical scrolling.

Adding Report Objects

To add a report object 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 then click **Ok** to add to the report.

Header
13 Mar 2019

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

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 dialog box is titled "DB Data Grid Setup". It has a "Target Location" dropdown set to "header" and two buttons: "Display All" and "Clear All". Below this is a "Display Format" dropdown set to "Grid with Page Break". There are three tabs: "Select Data", "Font", and "Border", with "Select Data" being the active tab. The "Select Data" panel contains a list of columns with checkboxes and formatting options:

Order	Show	Column Name	Text Align	Special Handling
1.	<input checked="" type="checkbox"/>	Show: employeeld	right	none
2.	<input checked="" type="checkbox"/>	Show: firstName	left	none
3.	<input checked="" type="checkbox"/>	Show: lastName	left	none
4.	<input checked="" type="checkbox"/>	Show: email	left	none
5.	<input checked="" type="checkbox"/>	Show: phoneNumber		

At the bottom are "Ok" and "Cancel" buttons.

The **Select Data** panel 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.

The dropdown menu is open, showing the following options:

- Grid with Page Break (selected)
- Grid
- Grid with Page Break
- Name/Value Pairs by Row
- Name/Value Pairs by Row with Page Break

The selections are described 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 individual 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 and Name/Value objects:

Body

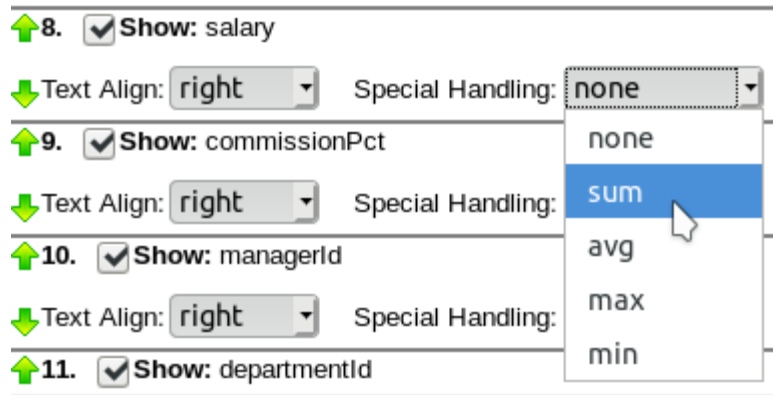
employeeId	firstName	lastName	email	phoneNumber
r0c0	r0c1	r0c2	r0c3	r0c4
r1c0	r1c1	r1c2	r1c3	r1c4
r2c0	r2c1	r2c2	r2c3	r2c4
r3c0	r3c1	r3c2	r3c3	r3c4
r4c0	r4c1	r4c2	r4c3	r4c4
r5c0	r5c1	r5c2	r5c3	r5c4
r6c0	r6c1	r6c2	r6c3	r6c4
r7c0	r7c1	r7c2	r7c3	r7c4
r8c0	r8c1	r8c2	r8c3	r8c4
r9c0	r9c1	r9c2	r9c3	r9c4
r10c0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

Body

employeeId	employeeId
firstName	firstName
lastName	lastName
email	email
phoneNumber	phoneNumber

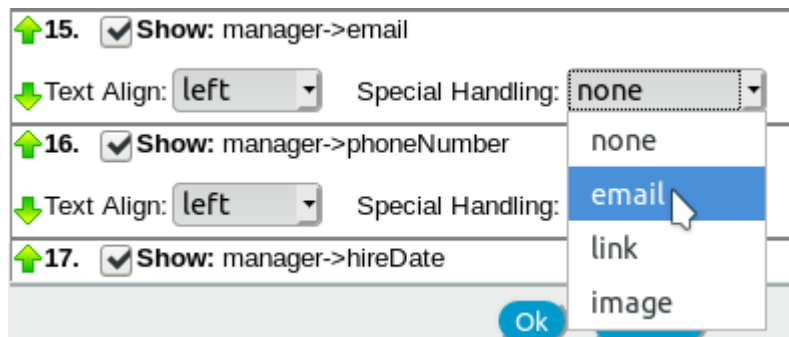
Special Handling can be applied to report columns.

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 be 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 for the displayed results:

Select Data


Font


Border

Header Font:

Name: Arial

Size/Weight: 10 900

Font Color: 

Background Color: 


☐ Italic
☐ Underlined


example text

Data Font:

Name: Arial

Size/Weight: 10 100

Font Color: 

Background Color: 

☐ Italic
☐ Underlined

example text

Select Data


Font

Border

Header Border:

Style: solid

Width: 2

Border Color: 


☒ left
☒ Top
☒ right
☒ Bottom

Example:

Data Border:

Style: solid

Width: 1

Border Color: 

☒ left
☒ Top
☒ right
☒ Bottom

Example:

Image

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

Image

Target Location: **body**

URL: <https://homepages.cae.wisc.edu/~>

Alt Text: **boat**

☒ Retain Aspect Ratio

☐ Size to Content

Ok **Cancel**

Select target page location, enter image URL, 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 of the target rectangle.
- Size to Content – if checked the image will be placed in the report at the 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:

Label

Target Location: **header**

Label Example

Label Font

Name: **Times New Roman**

Size/Weight: **20** **700**

Font Color: 

Background Color: 

☐ Italic ☐ Underlined

example text

Text Align: **left**

Ok **Cancel**

Header	Label Example
Body	

Link

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

Link

Target Location: **header**

URL: **http://www.cnn.com**

Display Text: **CNN**

☐ Show in New Tab

Link Font

Name: **Arial**

Size/Weight: **10** **100**

Font Color:

Background Color:

☐ Italic ☒ Underlined

example text

Text Align: **center**

Ok **Cancel**

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.

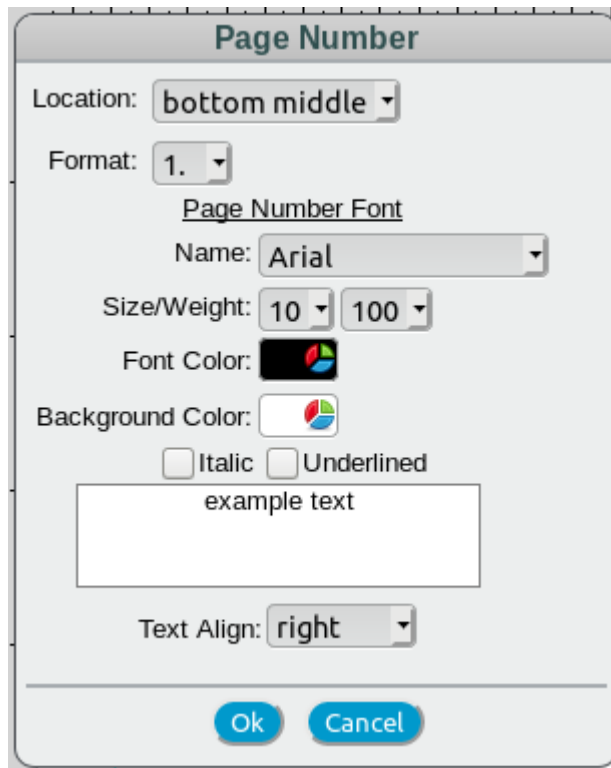


Email

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:



Page Number


Location: **bottom middle**


Format: **1.**

Page Number Font

Name: **Arial**

Size/Weight: **10** **100**

Font Color: 

Background Color: 

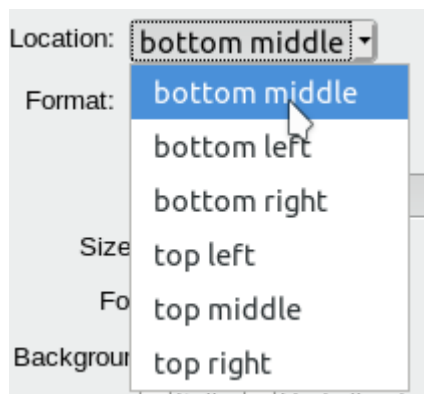
☐ Italic ☐ Underlined

example text

Text Align: **right**

Ok **Cancel**

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.:



Location: **bottom middle**

Format: **bottom middle**

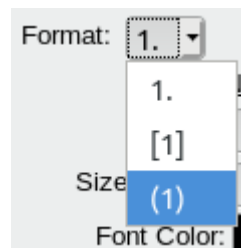
bottom left

bottom right

top left

top middle

top right




Format: **1.**

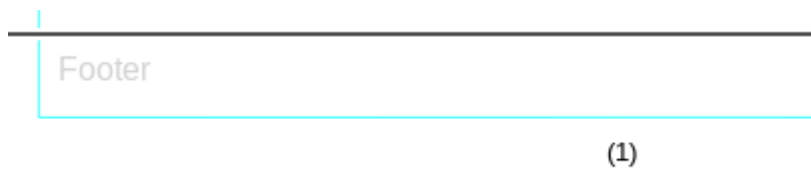
1.

[1]

Size: **(1)**

Font Color: 

When the report is run the current page number will be placed in the object.

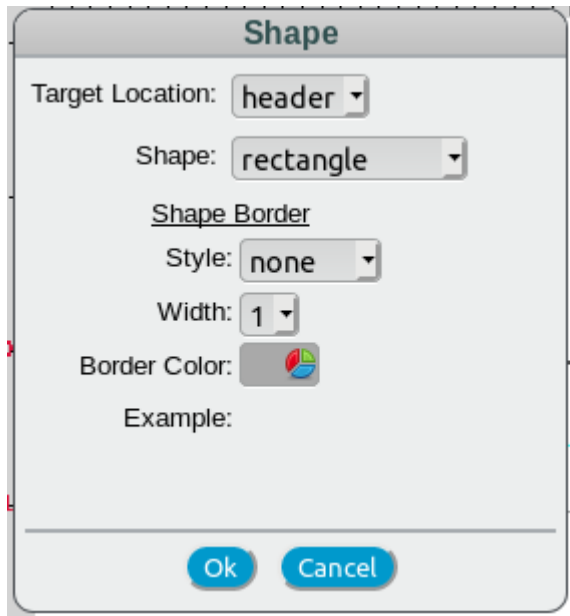


Footer

(1)

Shape

To add a shape to the report select **shape** from the report object dropdown:



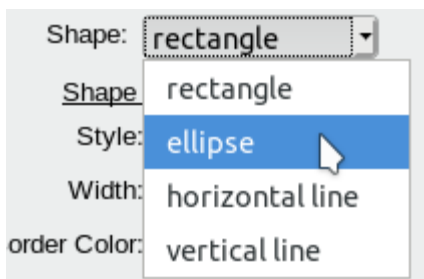
The 'Shape' dialog box is shown with the following settings:

- Target Location: **header**
- Shape: **rectangle**
- Shape Border: **none**
- Width: **1**
- Border Color: (color picker icon)
- Example: (empty)

Buttons: **Ok**, **Cancel**

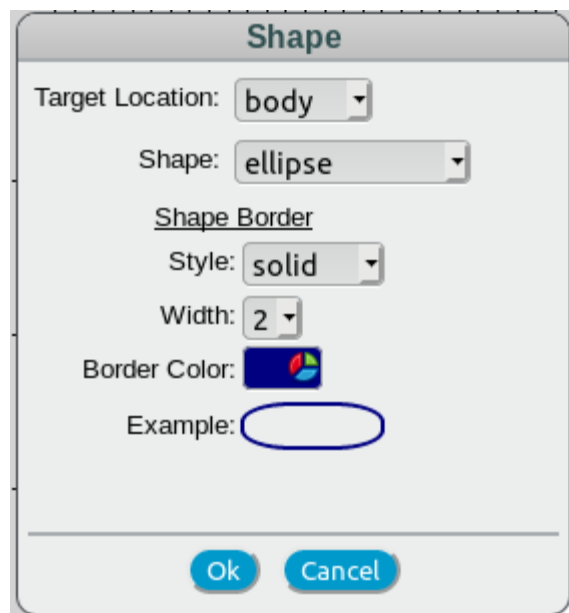
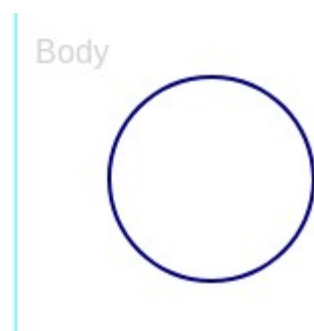
Select target location, desired shape and font format then click **Ok** to add to report.

The available shapes are shown below:



The 'Shape' dropdown menu is open, showing the following options:

- rectangle
- ellipse
- horizontal line
- vertical line



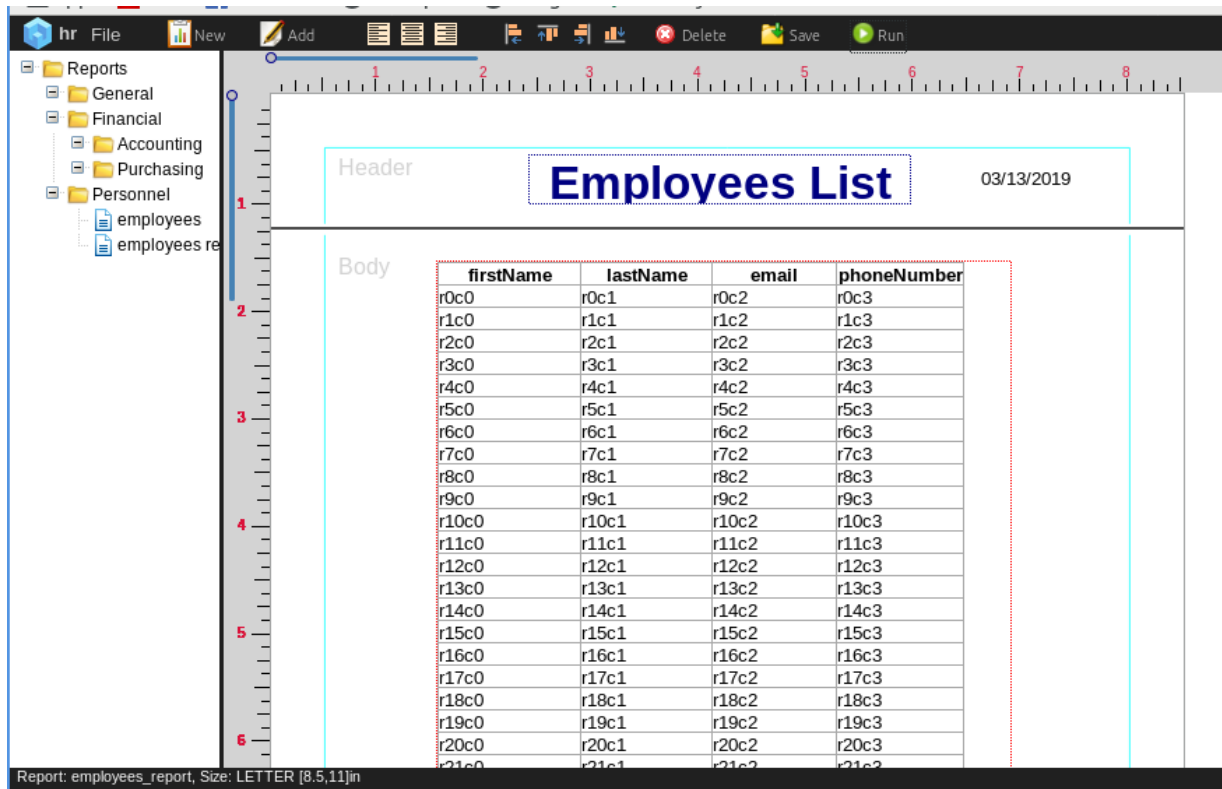
The 'Shape' dialog box is shown with the following settings:

- Target Location: **body**
- Shape: **ellipse**
- Shape Border: **solid**
- Width: **2**
- Border Color: (color picker icon)
- Example: (blue ellipse)

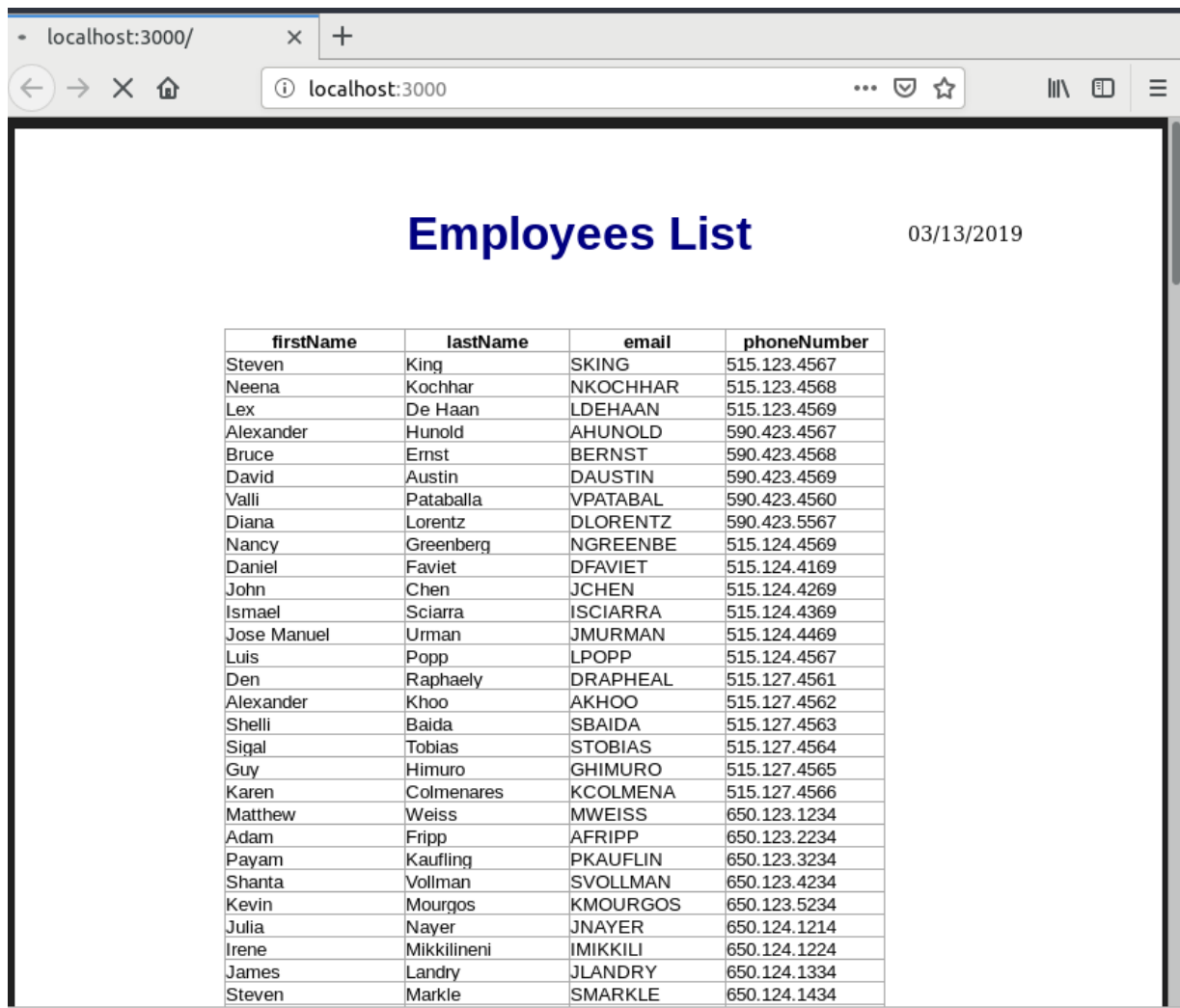
Buttons: **Ok**, **Cancel**

Running the Report

For test purposes the designed report can run from the designer by clicking the **Run** icon on the toolbar. So if we design a report something like this:

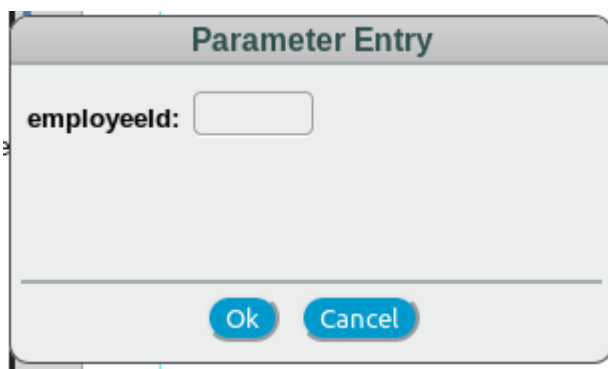


and click the run button we will get something like this:



firstName	lastName	email	phoneNumber
Steven	King	SKING	515.123.4567
Neena	Kochhar	NKOCHHAR	515.123.4568
Lex	De Haan	LDEHAAN	515.123.4569
Alexander	Hunold	AHUNOLD	590.423.4567
Bruce	Ernst	BERNST	590.423.4568
David	Austin	DAUSTIN	590.423.4569
Valli	Pataballa	VPATABAL	590.423.4560
Diana	Lorentz	DLORENTZ	590.423.5567
Nancy	Greenberg	NGREENBE	515.124.4569
Daniel	Faviet	DFAVIET	515.124.4169
John	Chen	JCHEN	515.124.4269
Ismael	Sciarra	ISCIARRA	515.124.4369
Jose Manuel	Urman	JMURMAN	515.124.4469
Luis	Popp	LPOPP	515.124.4567
Den	Raphaely	DRAPHEAL	515.127.4561
Alexander	Khoo	AKHOO	515.127.4562
Shelli	Baida	SBAIDA	515.127.4563
Sigal	Tobias	STOBIAS	515.127.4564
Guy	Himuro	GHIMURO	515.127.4565
Karen	Colmenares	KCOLMENA	515.127.4566
Matthew	Weiss	MWEISS	650.123.1234
Adam	Fripp	AFRIPP	650.123.2234
Payam	Kaufling	PKAUFLIN	650.123.3234
Shanta	Vollman	SVOLLMAN	650.123.4234
Kevin	Mourgos	KMOURGOS	650.123.5234
Julia	Nayer	JNAYER	650.124.1214
Irene	Mikkilineni	IMIKKILI	650.124.1224
James	Landry	JLANDRY	650.124.1334
Steven	Markle	SMARKLE	650.124.1434

If runtime input parameters are 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>`

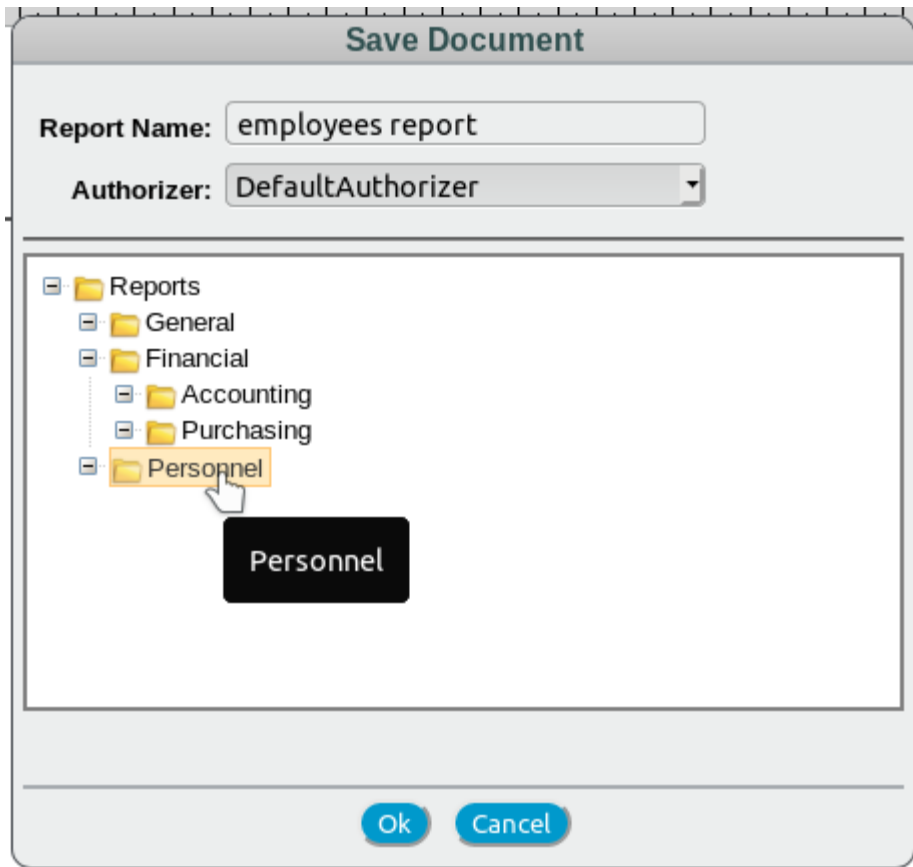
for example:

<http://localhost/runreport/hr.grp5.employees>

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:

