2RING DASHBOARDS & WALLBOARDS

USER GUIDE (DOCUMENT VERSION 5.3)

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CHAPTER 1
INTRODUCTION

This document serves as a user guide for the 2Ring DASHBOARDS & WALLBOARDS CONFIGURATION Tool, DESKTOP Client and WEB Client applications. It instructs users how to configure their Wallboards screens, describes all available UI controls and how to use them to define the layouts of the Wallboards screens and the sources that are part of them. This guide also describes features in the DESKTOP Client and WEB Client.

Notice: One of the abbreviations 2Ring DW or DW can be used instead of the full name of 2Ring DASHBOARDS & WALLBOARDS application throughout this document.

CHAPTER 2
KEY CONCEPTS

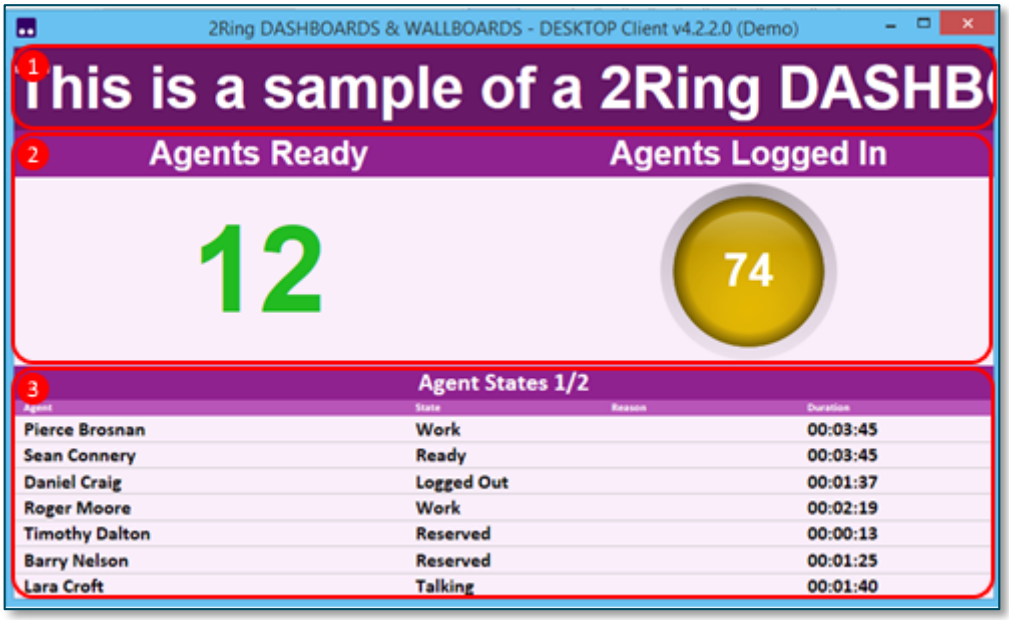
In order to fully grasp the potential of the 2Ring DASHBOARDS & WALLBOARDS solution, it is recommended to get accustomed to the entities and their meaning in the solution.

2.1. Screen Groups and Layouts

A group of DESKTOP Clients and/or WEB Clients that display the same content is called a *Screen Group*. The user can pick a Screen Group to display in each individual DESKTOP Client or WEB Client.

A Screen Group displays an associated *Layout* or a *Layout sequence*. It is the Layout that prescribes how a screen of a DESKTOP Client or WEB Client should be segmented into panels.

Figure 1: An example of a Layout in Desktop Client



1. Banner
2. KPIs
3. Grid

In the example above, you see a layout comprising of 4 panels. The one at the top displaying a message is called a Banner. Below the banner there are 2 KPI panels. At the bottom there is a Grid. A layout can have different number of panels and their relative sizes may also differ. This makes the layout system very customizable.

There is a set of pre-created Layout templates to simplify the set-up of the solution.

2.2. Content Sources

There are multiple types of content sources that can be put into panels of a Layout. These may be basic KPIs, Banners, Tickers or Grids as seen in the previous example or more advanced ones. Here is a complete list of all Content Source types:

- **Banner** - A scrolling or static text area that is usually used for displaying important announcements.
- **Ticker** - A collection of scrolling KPIs.
- **KPI** - A single numeric, date-time or time-span value.
- **KPI Interval** - A single numeric, date-time or time-span value.
- **Grid** - A grid of tabular data.
- **Sequence** - A named sequence of Content Sources. This can be used to switch content sources in the same panel.
- **External** - An external content not served by 2Ring DW such as a network accessible PowerPoint presentation, Flash video, or other Video formats.

2.3. From Data to Screen

Let's have a look at the path the data undertakes to get from the source system to a screen of a client used by a user.

2.3.1. Connector

A connector connects to a source system, gathers required data and performs calculations. A source system can be a Contact Center, Network Operations Centre or a similar system. Each connector provides a set of KPI/Grid Calculation Types that are meaningful in the domain of the source system.

2.3.2. Calculation Type

A calculation type is a named method of calculating a KPI value or Grid.

An example of a KPI Calculation Type can be:

- Provided by a Contact Center Connector
  - Service Level
  - Number of Inbound Calls
  - Number of Ready Agents
- Provided by a Network Operations Centre Connector
  - Number of monitored devices
  - Number of opened incidents
  - Number of solved incident

An example of a Grid Calculation Type can be:

- Provided by a Contact Center Connector
  - Agent State Grid
    - Agent Name
    - State
    - Time in State
    - Reason Code
  - Contact Service Queue Statistics
    - Queue Name
    - Calls Waiting
    - Calls Offered
    - Calls Handled
    - Service Level
    - Calls Abandoned
    - Handle Rate
    - Abandon Rate

A calculation type defines what can be calculated and what parameters it can use to calculate a final value or table of values.

2.3.3. Calculation

It is usually needed to perform a calculation multiple times using the same method (a KPI/Grid calculation type) but with different parameters. Such as to calculate a Service Level for a specific queue. The name of the specific queue is a parameter.

So to calculate Service Levels for two queues in a contact center, you would create two KPI Calculations using the same Calculation Type (Service Level). First KPI Calculation would pass the name of Queue1 as a parameter, while the other one would pass the name of Queue2 as a parameter. You can then name the KPI Calculations so that their name reflects the calculated value.

Service Level Queue 1

Service Level Queue 2

The principle is the same for Grids. Setup multiple Grid Calculations to use the same Grid Calculation Type but with different parameters.

2.3.4. Derived Calculations

Sometimes connectors do not deliver all calculation types a customer may need. It is possible to create custom calculations that derive from connector supplied calculations by calculating a formula over results of connector supplied calculations.

An example may be:

- KPI

  A Connector supplies KPIs *Total Calls*, and *Abandoned Calls*. The user is then able to define a derived KPI calculation defined as:

```
Abandon Rate = Abandoned Calls / Total Calls
```

- Grid

  A Connector supplies a Grid with Columns *Total Calls*, and *Abandoned Calls*. The user is then able to define a new derived Column defined as:

```
Abandon Rate = Abandoned Calls / Total Calls
```

2.3.5. KPI/Grid

Once the calculation is created and a value calculated, we need to display it. It is a KPI/Grid that tells the system how a value or table of values should be presented. The KPI/Grid defines all the visual properties.

Some properties that can be edited:

- Title Text, Size, Color and Background
- Value Font, Color and Background
- Refresh Interval

A KPI also defines which value ranges are considered to be good (usually displayed as green) which are neutral and which are considered to be bad (usually red). In some situations it is a good practice for a KPI displaying a bad value to blink or to play a sound to gain attention of the users.

Value ranges, blinking and audible alerts can be also used for Grid columns.

There can be multiple KPIs/Grids displaying the same Calculation result often with different ranges and alert settings.

2.3.6. Screen Groups and Layouts

KPI, Grids and other content sources are part of a Layout.

A Screen Group contains one or more Layouts.

A Screen Group is displayed by a Client

CHAPTER 3
GETTING STARTED GUIDE

This chapter will guide you through most often used scenarios. Many of these scenarios start at the *Home* screen of the CONFIGURATION Tool. The home screen is displayed automatically once you login and can be opened again from the *Sources* menu if you closed it previously.

3.1. Initial State

It is a good practice to install a connector before changing configuration of the DW system. Connectors supplied by 2Ring automatically create generic KPIs, Grids, Layouts and Screen Groups. The connector usually creates:

- A single KPI Calculation for each KPI Calculation Type
- A single KPI for each KPI Calculation
- A single Grid Calculation for each Grid Calculation Type
- A Single Grid for each Grid Calculation
- One or more Layouts and Screen Groups

3.2. Common scenarios

3.2.1. Change a Screen Group in DESKTOP Client

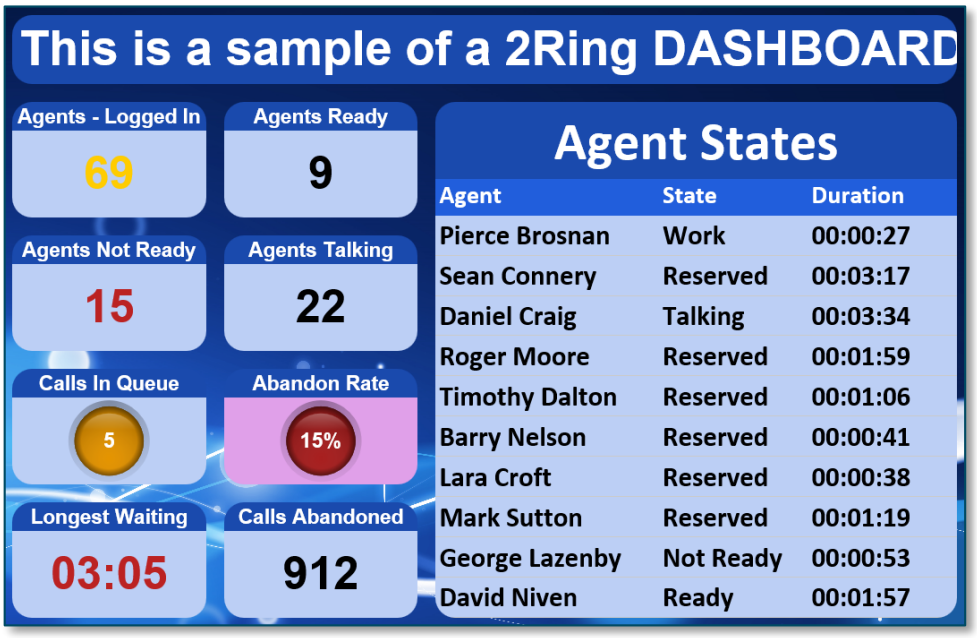
- Open DESKTOP Client.
- Right click anywhere inside and select Change Screen Group… in the context menu.
- In the Screen Group drop down list, select the Screen Group of your choice and click **Apply** & **Close** button.

3.2.2. Choose a Screen Group in WEB Client

- Open a browser and navigate to http://Hostname/ApplicationPath. Hostname is the server where DW is installed. Application Path by default is 2Ring/DW.
- Use your assigned DW login credentials to load the Screen Group list.
- Each tile in the Screen Group list represents a Screen Group. Click on the tile to load a wallboard.
- To return to the Screen Group list, click on the 2Ring logo.

3.2.3. Add background image to Screen Group

- Click on the Screens tile on the Home screen.
- In the left menu, select the Screen Group you want to change.
- In the Screen Properties tab, select image in the Background Type property.
- Choose the image to display in the Background Image property.
- Click **Save** button.



3.2.4. Apply rounded edges to Sources in Screen Group

- Click on the Screens tile on the Home screen.
- In the left menu, select the Screen Group you want to change.
- In the Screen Properties tab, check Use Rounded Corners.
- Click **Save** button.

3.2.5. Change the visual form of a KPI

- Click on the KPI tile on the Home screen.
- In the left menu, select the KPI you want to change.
- On the right side, click on the Presentation Type drop down list and select a different presentation type.
- Click **Save** button.

3.2.6. Send a text message to a Banner

- Click on the SEND tile on the Home screen.
- Select a Screen Group you want to target. A list of Banners in the group will be loaded.
- Select a Banner from the Banner drop down list.
- Enter the message into the textbox that will be displayed on the selected Banner.
- Click **Send**.

3.2.7. Configure thresholds and alerts for a KPI or Grid

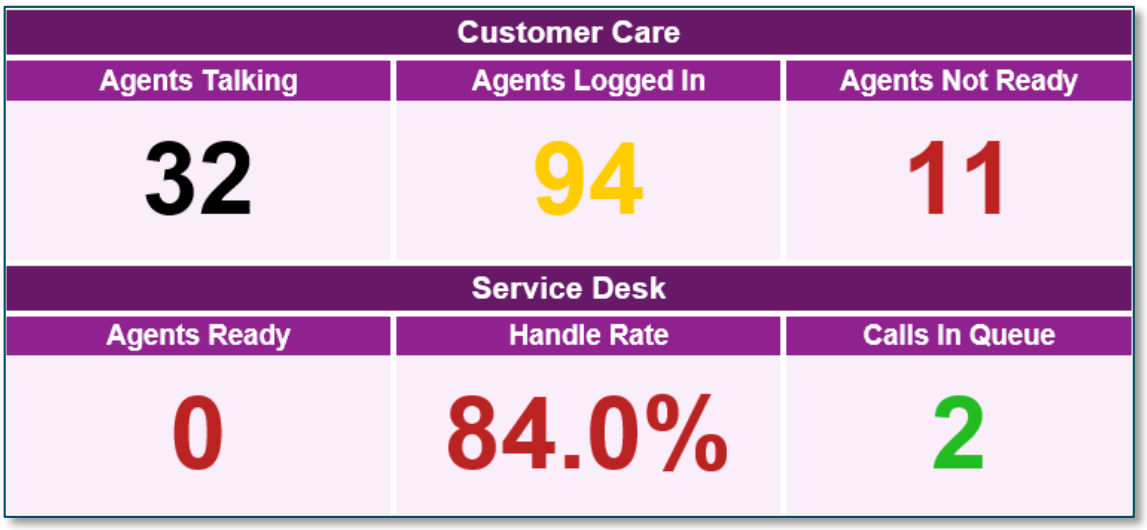
- KPI Threshold:
  Example: Alert and blink when Service Level KPI is below 90%.
  - Click on the KPI tile on the Home screen.
  - Select Service Level KPI from the list.
  - Click on Thresholds and Ranges tab.
  - Enter 0 for Bad Value Minimum and 90 for Bad Value Maximum.
  - Check Blink on Bad Value, check Alert on Bad Value. Select sound to play when bad value is reached.
  - Click Save.
- Grid Threshold:
  Example: Alert and blink when Service Level KPI is below 90%.
  - Click on the Grid tile on the Home screen.
  - Select Grid from the list.
  - In General tab, select alert sound to play when bad value is reached in Alert Audio File dropdown menu.
  - Click on Columns tab, select Service Level column from the list.
  - Click on Thresholds and Ranges tab.
  - Enter 0 for Bad Value Minimum and 90 for Bad Value Maximum.
  - Check Blink on Bad Value, check Alert on Bad Value.
  - Click Save.

3.2.8. Display image in a Banner

- Click on Sources in the menu. Select Banners.
- Choose a banner from the list.
- In the Image tab, check Show Image checkbox.
- For File Name property, enter a URL to the image. If the image is on the network use format: File\\servername\image.png
- Add a margin to the image in the Margin property. A white space will be put around the image.
- Click Save.

3.2.9. Create a common header for multiple KPIs

- Click on Sources in the menu. Select Banners.
- Create 2 Banners by clicking on + to create a new Banner.
- In the General tab, check Active property and select Scrolling type: Static. Add the banner text into Text property.
- Click on Screens in the menu. Select Layouts.
- Click + to create a new Layout. Select the new Layout and click Edit Layout.
- At the top of the Layout, add the Static Banner.
- Below the Banner, add 3 KPIs in one row.
- Click Apply and then Save.



3.2.10. Show a clock on the screen

- Click on Sources in the menu. Select Banners.
- Click on + to create a new Banner.
- In the General tab, uncheck property Active.
- In the Clock tab, check Show Clock when Inactive property.
- Change the style of the Banner, by changing the background color, text-color, etc.
- Click Save.

3.2.11. Replace KPI, Grid or Banner in a Layout

- Click on the Layouts tile on the Home screen.
- In the left menu, select the Layout you want to change.
- On the right side, click on the Edit Layout button.
- Locate the KPI, Grid or Banner you wish to replace and select another one from the drop-down menu.
- Below the Layout, click on the Apply button and then click on the Save button.
- In DESKTOP Client right click anywhere and choose Reload Screen Group in the context menu.

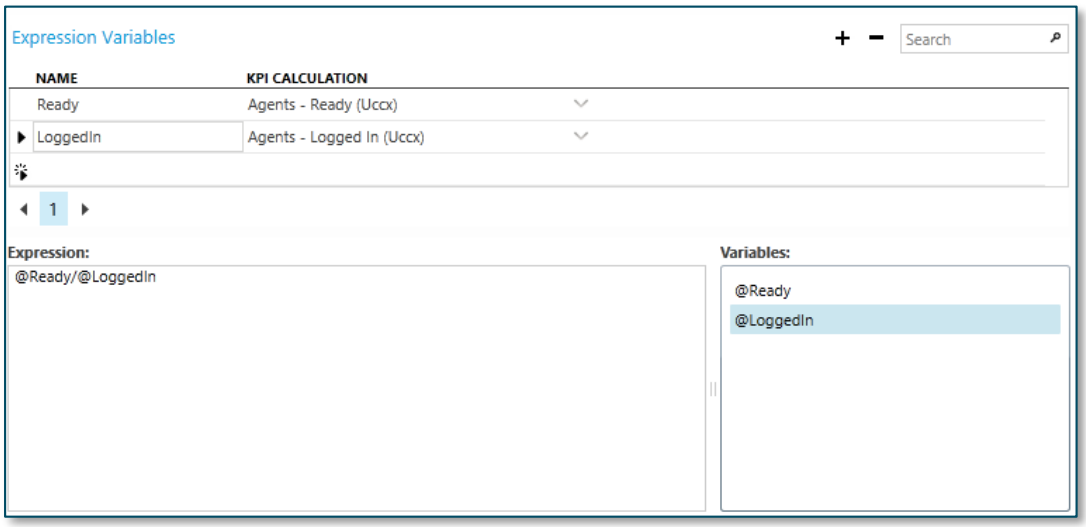
3.2.12. Create a KPI Ticker

- Click on Sources in the menu. Select Tickers.
- Click on + to create a new Ticker.
- Give the Ticker a name in the name property.
- Specify the direction of the moving KPIs, scroll speed, etc.
- Add KPIs to the Ticker Items list. For each new entry, click the add icon **+**.
- Choose the KPI from the KPI list by double clicking under KPI column.
- Click the Save button.

3.3. Advanced tasks

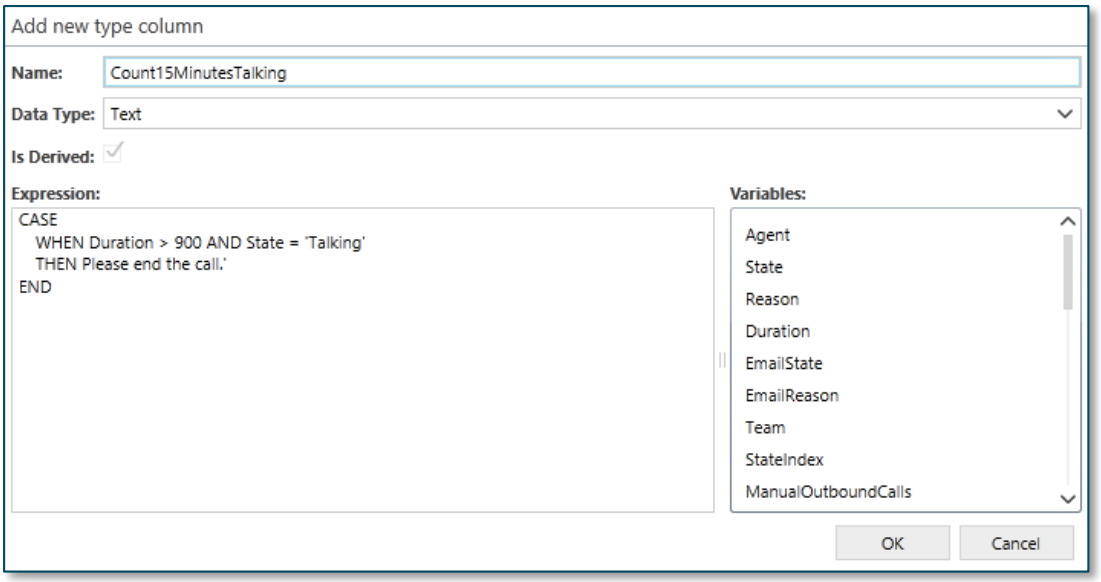
3.3.1. Create a Derived KPI Calculation

- Click on KPI Calculations - Derived under Calculations in the menu.
- Click the add icon **+**, a new derived KPI Calculation will be created.
- In the General tab, fill out Name, description and check enabled.
- From the KPI Calculation Type drop down list select one of the following:
  - Numeric
  - Text
  - Date Time
  - Time Span
- In the Expression tab, enter the derived calculation. If the derived calculation requires a connector supplied calculation, select it from KPI calculation column and give it a unique name. These calculations can then be added to the T-SQL expression by double-clicking them in the variables pane.



3.3.2. Create a Derived Grid Column

- Click on Connectors under Calculation in the menu.
- Click on Grid Calculation Type tab.
- From the Types table, select a Grid Calculation Type to which a derived column should be added.
- In the Type Columns, click the add icon **+** to add a new column. The following window appears:



Fill in the following fields:

- Name – name of the new computed column.
- Data Type – the type of value that will be calculated. Possible options are: Date Time, Numeric, Text or Timespan.
- Expression – A T-SQL expression to compute the column. Other column values can be used in the expression by double clicking the column name in the Variables list box.
- Click OK.
- The column can now be added to a Grid.

3.3.3. Create custom KPI from a predefined KPI

Every predefined KPI in 2Ring DW can be cloned and customized for more specific requirements. First the predefined KPI calculation must be copied and a new KPI source must be created. The KPI calculation is then associated with the new KPI source.

Example: Company needs to see *Agents Logged In (UCCX)* KPI for Contact Service Queues: Support, Mail. For this KPI Calculation, only one parameter can be filled out, in this case Contact Service Queues.

- Create KPI Calculation:
  - Click on KPI Calculations under Calculations in the menu.
  - Select Agents – Logged In (UCCX) in the KPI Calculations list.
  - Click the Copy icon , a new KPI Calculation will be created.
  - On the right hand side under Calculation Parameters, enter values: Support and Mail for contactServiceQueue parameter. Separate multiple values by a comma.

  - Name the newly created KPI Calculation so that its name reflects the change.
  - Click **Save**.

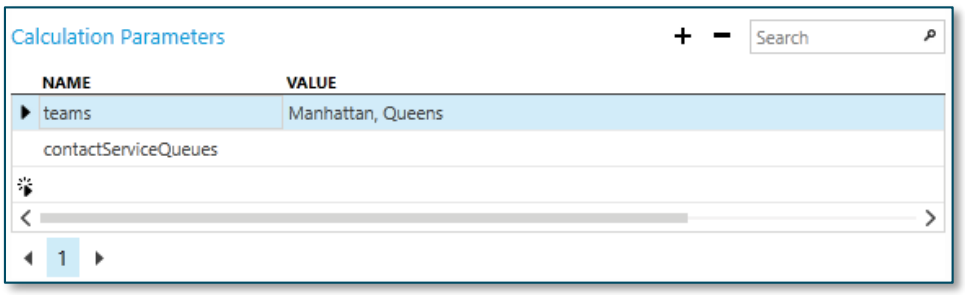
- Create KPI Source:
  - Click on KPIs under Sources.
  - Click the Add button and enter a Name for the KPI in the General tab.
  - Associate the new KPI calculation from the KPI Calculation drop down.
  - Click **Save**.

3.3.4. Create custom Grid from a predefined Grid

Every predefined Grid in 2Ring DW can be cloned and customized for more specific requirements. First the predefined Grid calculation must be copied and a new Grid source must be created. The Grid calculation is then associated with the new Grid source.

Example: Company needs to see *Agents - States (UCCX)* Grid for Teams: Manhattan, Queens. For this Grid Calculation only one parameter can be filled out, in this case Teams.

- Create Grid Calculation:
  - Click on Grid Calculations under Calculations in the menu.
  - Select Agents – States (UCCX) in the Grid Calculations list.
  - Click the Copy icon , a new Grid Calculation will be created.
  - On the right hand side under Calculation Parameters, enter values: Manhattan and Queens for Teams parameter. Separate multiple values by a comma.



  - Name the newly created Grid Calculation so that its name reflects the change.
  - Click **Save**.

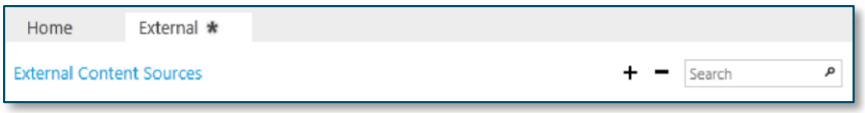
- Create Grid Source:
  - Click on Grids under Sources.
  - Click the Add button and enter a Name for the Grid in the General tab.
  - Associate the new Grid calculation from the Grid Calculation drop down.
  - Click **Save**.

3.3.5. Create a Sequence using existing KPIs

- Click on the Sequences tile on the Home screen.
- Create a new Sequence by clicking the + sign.
- Set the name and description of your Sequence.
- Click below and start typing the name of the KPI that you want to use first in your sequence, such as "*KPI:Agents – Logged In*". Once you have found it in the drop down list, press the tab key on your keyboard and enter the number of seconds that you want this KPI to be displayed for. Press tab again and again.
- Now you can add a second KPI into the Sequence. Keep going until you have added all the KPIs that you want to be part of your Sequence.
- Once you are done, do not forget to press SAVE at the bottom of the screen.
- Now click on HOME in Sources, and then click on Layouts tile. In the left menu, select the Layout to which you want to add your Sequence, and then at the bottom right of the screen, click on Edit Layout. Just select the parts of the Layout to which you want to add the Sequence. Do not forget to click APPLY and then **Save** button.
- Launch DESKTOP Client, you will get to see the updated Layout including your Sequence.

3.3.6. Show a video or a presentation in Layout

- Click on the External tile on the Home screen.
- Add a new item to the list by clicking on the "+" symbol in the top part of the External tab.

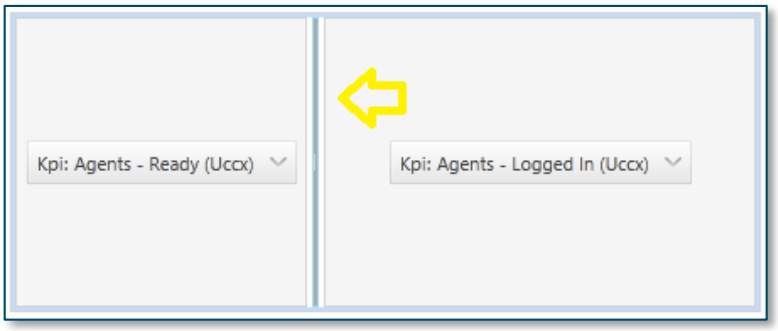


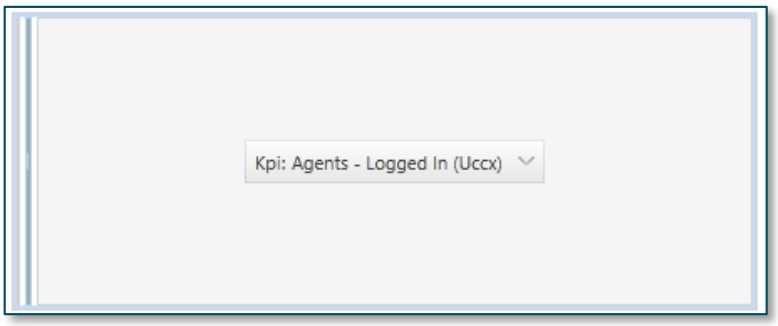
- On the right side, fill out the information about your external source.
- For local content such as a presentation or a video on you network
  - Choose PowerPoint or Video respectively as a Content Type.
  - Enter full path to the file into the URL field. You can use both http as well as file share accessible links.
    http://fullUrlOfTheFile
    \\server\share\filenamepath
- For a YouTube video
  - Choose Web as a Content Type
  - Enter the URL of YouTube video in following format
    http://www.youtube.com/embed/VIDEO_ID?feature=player_detailpage&autoplay=1&autohide=1&loop=1&playlist=VIDEO_ID
    where VIDEO_ID is the ID of the video, ex:
    link = www.youtube.com/watch?v=**ANYuXCdQsk** VIDEO_ID = **ANYuXCdQsk**
- Click **Save** at the bottom of the screen.

3.3.7. Include a Hidden KPI on a Layout

If you want to include a KPI that issues audible alert but you do not want this KPI to be visible, you can include the KPI in layout and make it hidden. This can be used to play different audible alerts for different bad values.

- Click on the Layouts tile on the Home screen.
- Click the add icon + to create a new layout.
- Add Sources to the layout.
- Move the slider towards the Source so that it is not visible.
- Click **Apply** and then **Save**.





3.3.8. Leave a Segment blank in Layout

- Click on the Layouts tile on the Home screen.
- Select a Layout from the Layout list.
- Click Edit Layout button.
- Choose a segment in the Layout that should be left blank.
- Select External: Blank from the drop down list.
- Click **Save**.

3.3.9. Hide unused Screen Groups from DW Clients

- Click on the Screen Groups tile on the Home screen.
- Select a Screen Group from the Screen Group list.
- In the General tab, click Hidden.
- Click **Save**.

3.3.10. Hide unused KPIs from Layout Configurator

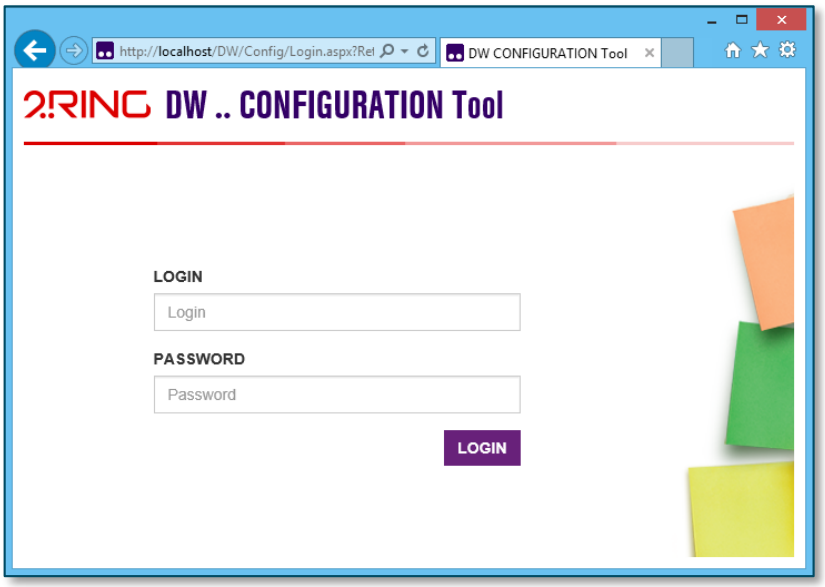
- Click on the KPI tile on the Home screen.
- In the left menu, select the KPI you want to hide.
- In the General tab, click Hidden.
- Click **Save**.

CHAPTER 4
CONFIGURATION TOOL

4.1. Login Screen

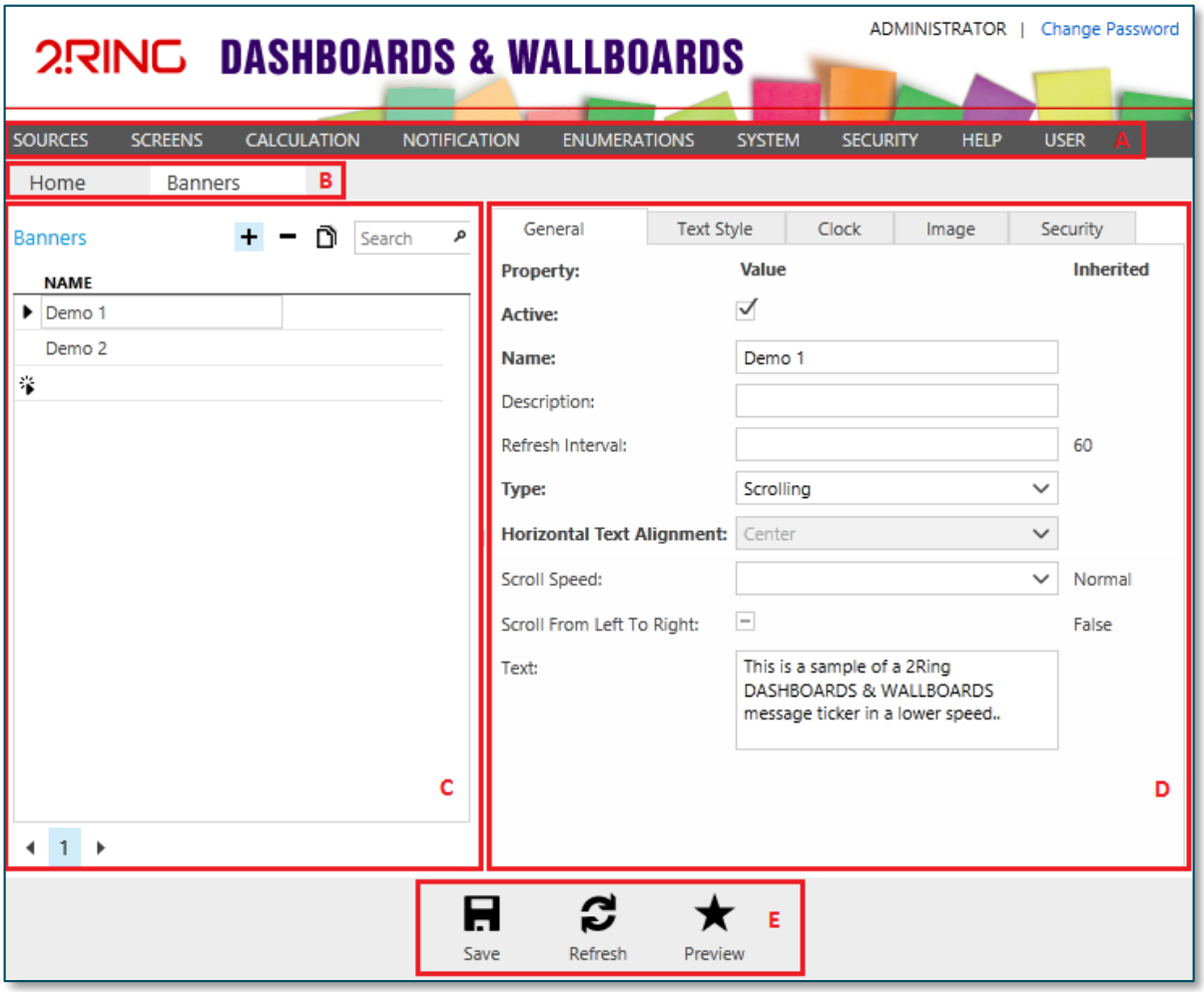
The user logs in to the 2Ring DASHBOARDS & WALLBOARDS configuration application by completing the Login and Password fields. The user must have at least the KPI Administrator's permission. When the login is successful, the Home Screen is shown with the login name in the top right.

Figure 2: Login Screen



4.2. User Interface Description

Figure 3: User Interface Layout



The web configuration user interface is divided into several parts:

- **Menu** – it is always on the top of the page. It contains links to all parts of the application that are accessible to users (see A).
- **Tabs** – all open forms are displayed below the Menu (see B). The content of the active tab (with a white background) is editable in the List and Detail forms (see C and D). The open tabs can be closed by clicking the close button displayed on hover.
- **Form List** – displays a list of all available configuration items and enables adding, editing, removing, and copying an existing item or searching for a desired item (see C).
- **Form Detail** – edits the item selected on the left side (see D).
- **Form Buttons** – present operations for the whole form (see E).

4.2.1. Menu

The menu is divided into these main parts:

- **SOURCES** – represents the content sources available for use in Layouts
  - KPIs
  - KPI Intervals
  - Grids
  - Banners
  - Tickers
  - External
  - Sequences
- **SCREENS**
  - Layouts
  - Screen Groups
  - Send Message
- **CALCULATION**
  - Connectors
  - Grid Calculations
  - KPI Calculations
  - KPI Calculations – Derived
- **NOTIFICATION**
  - Channels
  - Rules
  - Settings
- **ENUMERATIONS**
  - Alert Audio Files
  - Aspect Ratios
  - Background Images
  - Display Formats
  - Fonts
  - Presentation Types
  - Ticker Item Heights
  - Ticker Item Widths
  - Scroll Speeds
- **SYSTEM**
  - Default Values
  - Settings
- **SECURITY**
  - Groups
  - Roles
  - Users
  - Bulk Access Rights Wizard

- **HELP**
  - Admin Guide
  - User Guide
  - UCCE Installation Guide
  - UCCE User Guide
  - UCCX Installation Guide
  - UCCX User Guide
  - About
- **USER**
  - Logout

4.2.2. Form List

Figure 4: Form List

The following operations (see *Figure 4*) are applicable to list items:

- **Add** – click the add button (see A) and edit the Detail form. Click the Save button.
- **Remove** – select the item to remove and click the Remove button (see B). Click the Save button.
- **Copy** – click on the desired row and click the copy button (see C). Edit the Detail form. Click the Save button. The Copy operation is applicable only in Banners, KPIs and Layouts items.
- **Search** – write the item name in the search box (see D) and press Enter.

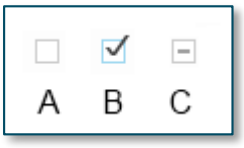
The selected item has an arrow sign at the beginning (see *Figure 4*). The item is selected by clicking on the row. The Edit, Remove and Copy operations are applicable for the selected item.

4.2.3. Form Detail

The form details for each menu item are described in chapters *4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 4.9*

Common Form Detail Controls:

Check box – the control can have three states:



- **unchecked** – the value is not applied
- **checked** – the value is applied
- **default** – the default value is used

Color control – has an editable text box where the set color is in text form (e.g. red, green, orange …) or in hexadecimal form (e.g. #FF0000, #00FF00, #FF9900 …).

4.2.4. Form Buttons

Form buttons are located at the bottom of open forms.

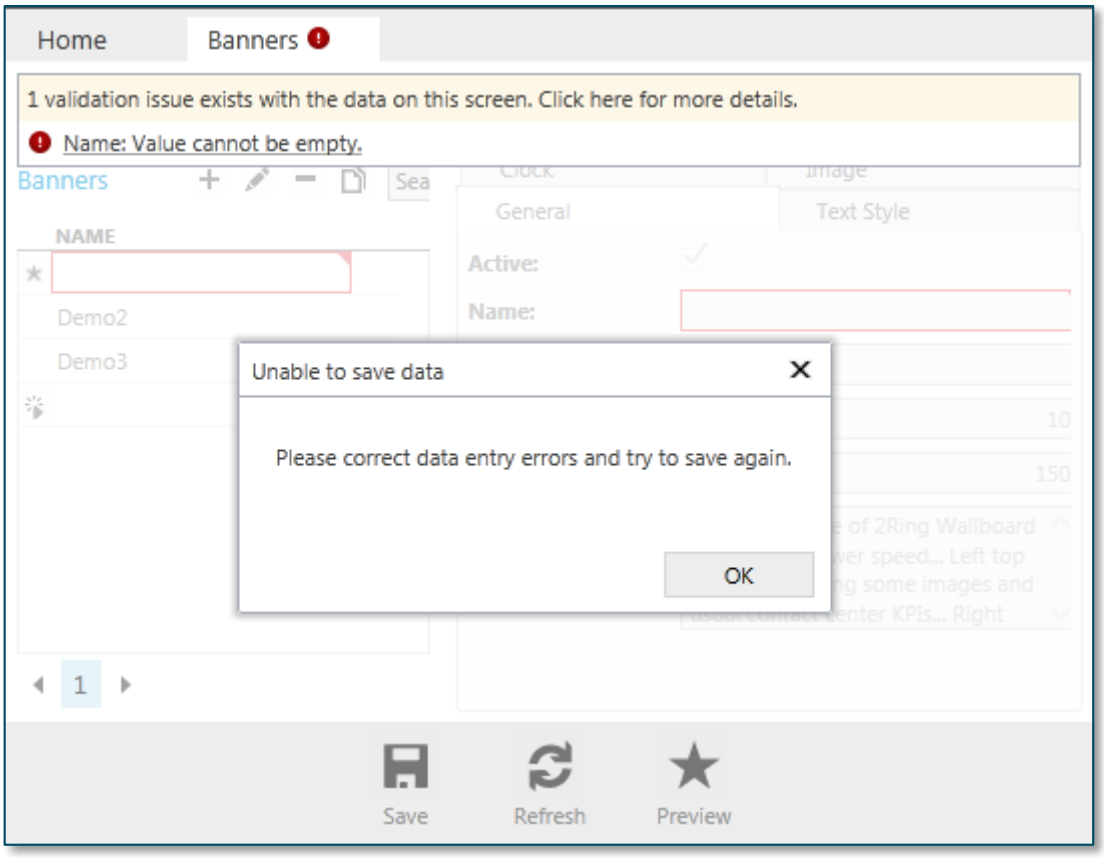
- **Save** – saves all data changes in the current open screen.
- **Refresh** – refreshes all data in the current screen.
- **Preview** – shows a preview of the current configuration and is available only in certain places (like KPIs, Grids…)

4.2.5. Validation Messages

If the Detail form is not filled in correctly, a validation message is displayed when clicking save. The detail validation message is shown when clicking on the message at the top of the page (see *Figure 5*).

The labels of the required fields are bold.

Figure 5: Validation Message

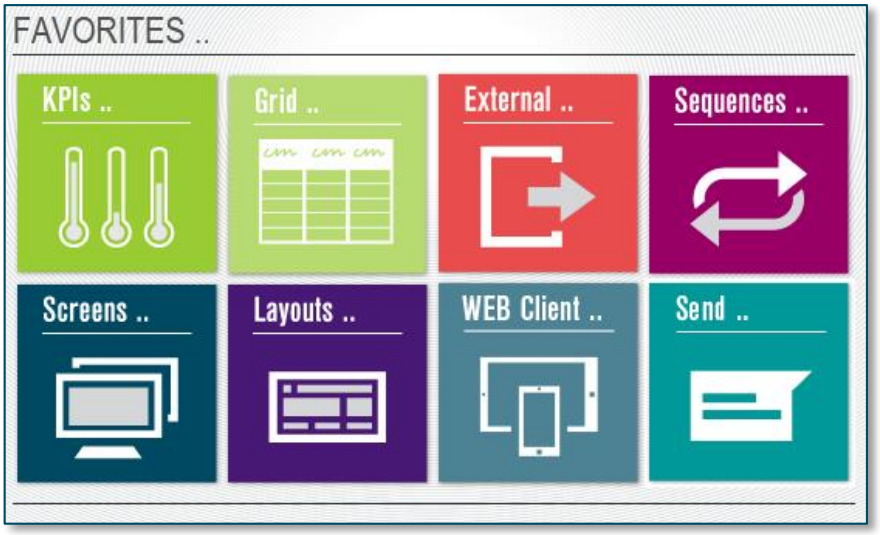


4.3. Sources

4.3.1. Home Screen

The Home Screen (*Figure 6*) is the initial screen shown to users after a successful login. It provides quick access to other screens used for the configuration of 2Ring DASHBOARDS & WALLBOARDS. Users may activate a specific configuration screen by clicking on the respective shortcut tile.

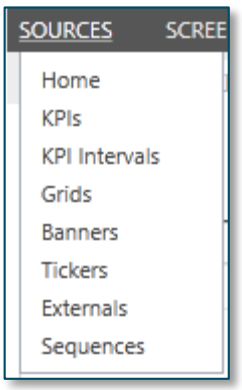
Figure 6: Home Screen



4.3.2. KPIs

KPI stands for Key Performance Indicator which is a type of performance measurement. KPIs evaluate success of a particular activity. To create an indicator go to main menu under SOURCES as shown in the figure below:

Figure 7: Sources

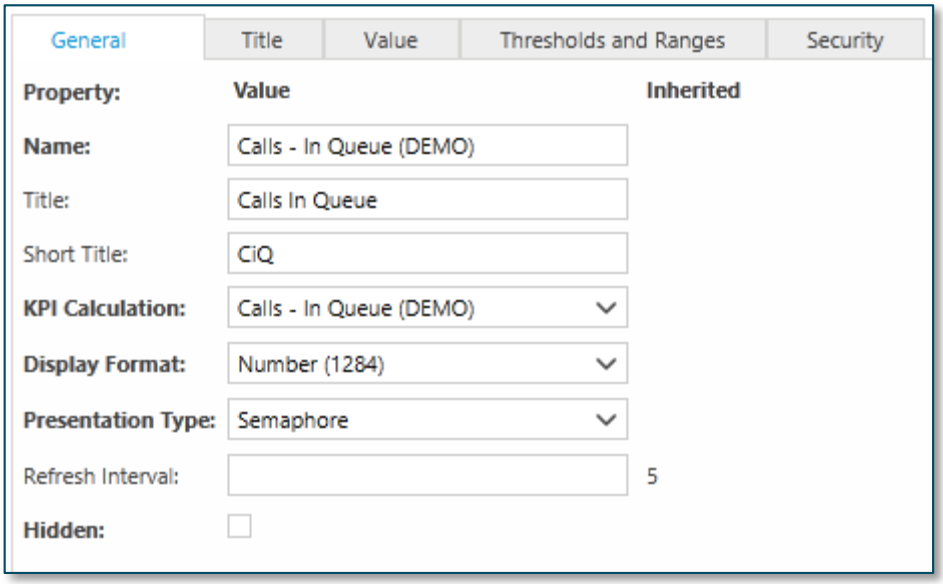


When users create a new KPI, 4 tabs are available to them:

- **General** - common information like KPI name, display format, etc.
- **Title Style** - definition of how the KPI title looks.
- **Value Style** - definition of how the KPI value looks.
- **Thresholds and Ranges** - definition of how the KPI warns users about the edge value.
- **Security** – Security settings for KPI.

General

Figure 8: General

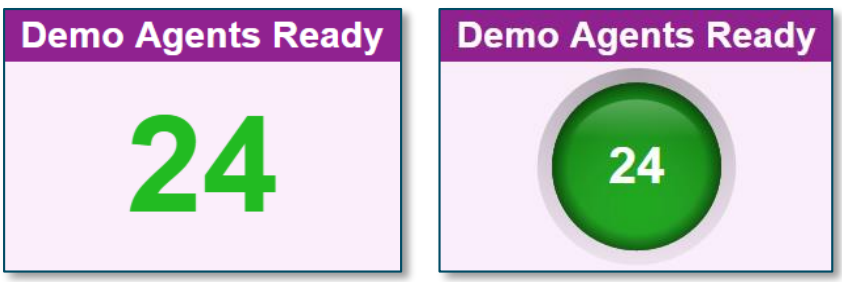


In the General tab, users can set these properties:

Required:

- **Name** - name of the KPI, used as a reference in the Sequences or Layout configuration.
- **KPI Calculation** - users can choose one of the predefined KPI calculations. The list is provided by 2Ring and grows with every new release of the 2Ring DASHBOARDS & WALLBOARDS solution. To customize an existing KPI calculation or add a completely new KPI, contact your administrator of 2Ring DW. If trained, s/he will be able to modify existing or add new KPIs without involving 2Ring, but in most cases, it will be necessary to submit an RFC (Request for Change) with 2Ring / your system integrator.
- **Display Format** - display format of the KPI value such as number (1284), percentage 98%, etc.
- **Presentation Type** - graphical representation of KPI value. For simple text or number values, use presentation type: Alphanumeric. Changing the Presentation Type can create different views as shown in the figure below.

  Figure 9: Different Graphical Representations of the same KPI



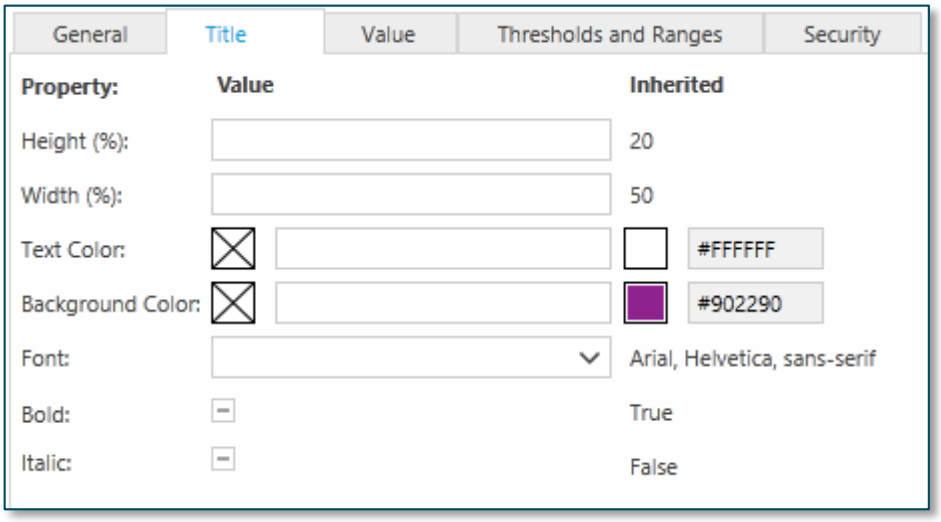
- **Hidden** - If checked, the KPI will not be visible in the drop down list of available sources when configuring a Layout. See *4.4.1* on Configuring Layouts.

Optional:

- **Title** - title of the KPI, displayed at the top.
- **Short Title** – title used when KPI is displayed in a Ticker.
- **Refresh Interval** - value in seconds which defines the interval of checking KPI configuration changes and also reading new KPI value.

Title

Figure 10: Title Tab



In the Title tab, users can set these properties (all optional, if a property isn't filled out, it is set by the default value):

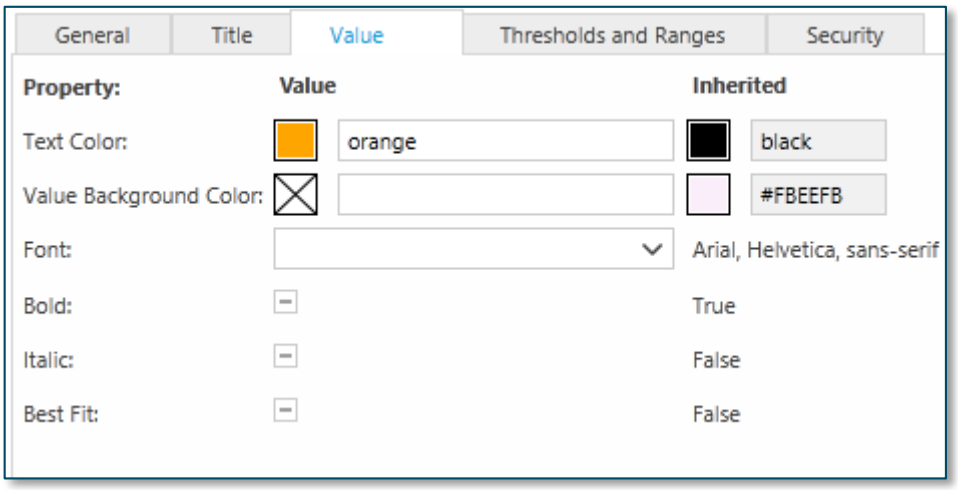
Optional:

- **Height (%)** - this value describes the height of the rectangle where the title is placed and also the height of the title text. This value is a percentage of the window size and users should set it up while using the preview option (placed at the bottom of the screen).
- **Width (%)** – the width of the title when the KPI is displayed in a Ticker and the title is positioned to the left or to the right.
- **Text Color** - color of the title text.
- **Background Color** - background color of the title text.
- **Font** - font of title text.
- **Bold** - checkbox indicating if the title text is bold. If set to True, the title text is bold.
- **Italic** - checkbox indicating if the title text is italic. If set to True, the title text is italic.

Value

In the Value tab, users can set these properties (all optional, if a property isn't filled out, it is set by the default value):

Figure 11: Value Tab

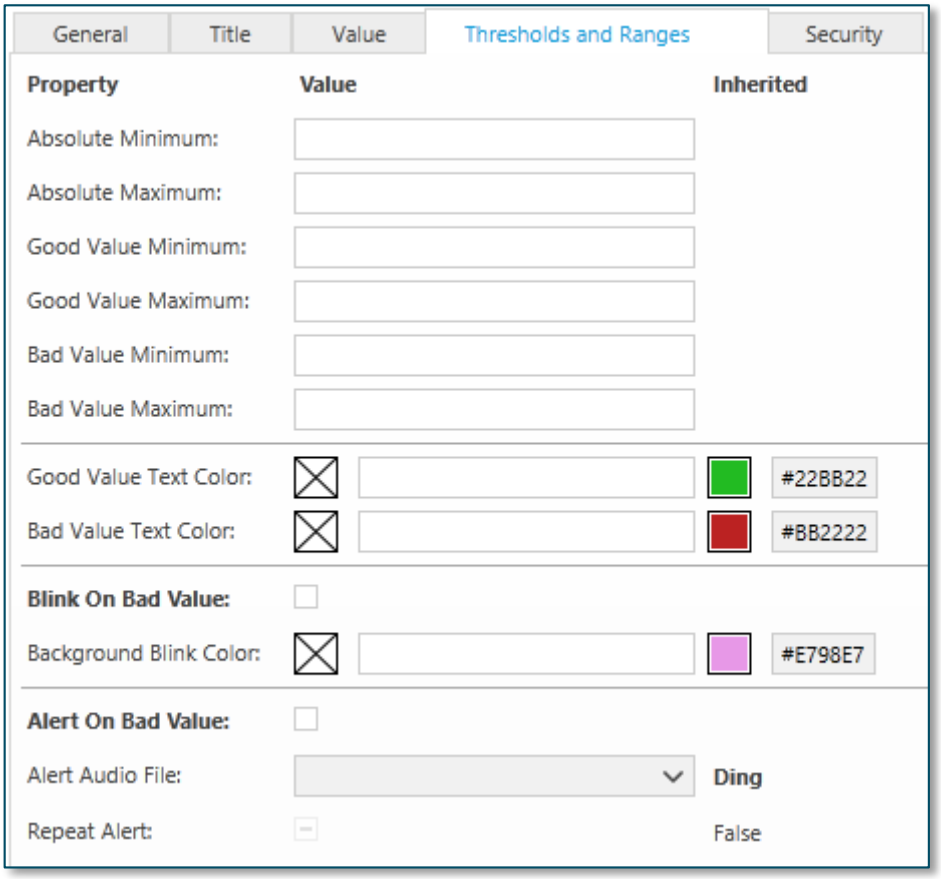


Optional:

- **Text Color** – color of the KPI value.
- **Value Background Color** - background color of the value area.
- **Font** - value text font.
- **Bold** - checkbox indicating if the value text is bold. If set to True, the value text is bold.
- **Italic** - checkbox indicating if the value text is italic. If set to True, the value text is italic.
- **Best Fit** - checked checkbox indicates that the whole value text fits into the content area regardless of width and height of content area. By default (Best Fit is not checked), the value text is calculated according to the height of the content area and longer text may be cut off in the content area.

Thresholds and Ranges

Figure 12: Thresholds and Ranges Tab

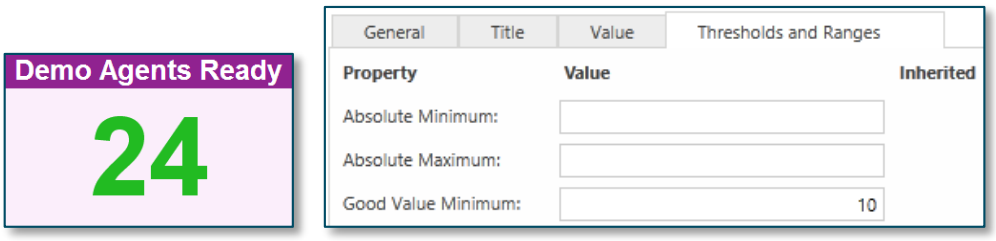


In the Threshold and Ranges tab, users can set these properties (all optional, if a property isn't filled out, it is set by the default value):

Optional:

- **Absolute Minimum** - If both the Good Value Minimum and Bad Value Minimum are set, the Absolute Minimum must equal the lesser one of these.
- **Absolute Maximum** - If both the Good Value Maximum and Bad Value Maximum are set, the Absolute Maximum must equal the greater one of these.
- **Good Value Minimum** - defines the minimum value for Good Value Color. The KPI value is shown in the Good Value Color when the KPI value is equal to or greater than the Good Value Minimum, as seen in the pictures below (the Good Value Color in this example is green):

Figure 13: Thresholds and Ranges Value

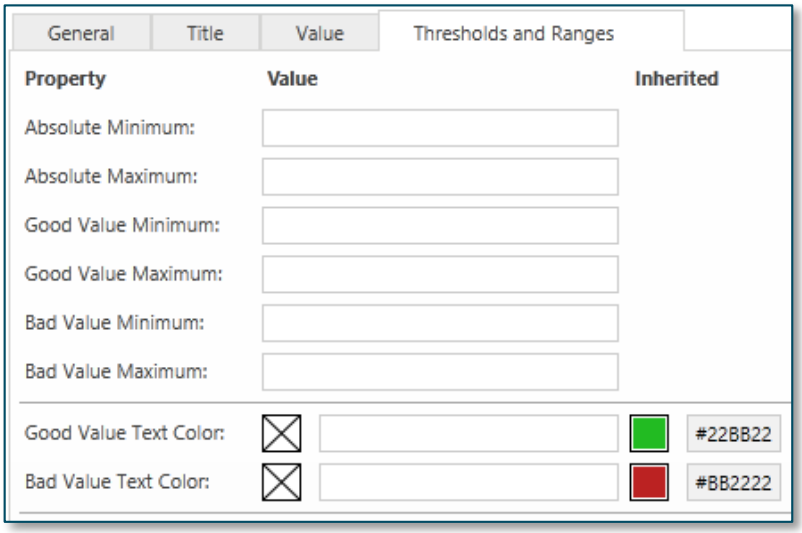


- **Good Value Maximum** - defines the maximum value for the Good Value Color. The KPI value is shown in the Good Value Color when the KPI value is less than the Good Value Maximum.
- **Bad Value Minimum** - defines the minimum value for the Bad Value Color. The KPI value is shown in the Bad Value Color when the KPI value is equal to or greater than the Bad Value Minimum.
- **Bad Value Maximum** - defines the maximum value for the Bad Value Color. The KPI value is shown in the Bad Value Color when the KPI value is less than the Good Value Maximum.
- **Good Value Text Color** - The KPI value color for the range of values defined by the Good Value Minimum and Good Value Maximum.
- **Bad Value Text Color** - The KPI value color for the range of values defined by the Bad Value Minimum and Bad Value Maximum.
- **Blink On Bad Value** - Turn on blinking for KPI with values in the range defined by the Bad Value Minimum and Bad Value Maximum.
- **Background Blink Color** - The KPI blink color for the range of values defined by the Bad Value Minimum and Bad Value Maximum.
- **Alert On Bad Value** - Turn on an audible alert when a KPI value transitions from Good/Neutral value range into Bad Value range.
- **Alert Audio File** - Audio file to be played when KPI value has transitioned from Good/Neutral value range into bad value range.
- **Repeat Alert** - Continuously repeat alert audio file while KPI value stays in Bad Value range.

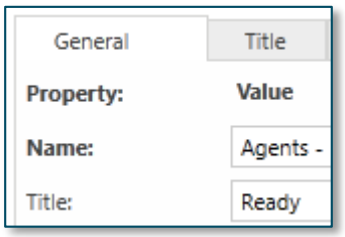
Notice: The audible alert feature is not supported by some browsers (Internet Explorer 8). Some devices with iOS and Android do not support playing sounds without user interaction. DESKTOP Client only plays audio file on a currently displayed Layout in a Screen Group layout sequence. For more info on Screen Groups see section *4.4.2*

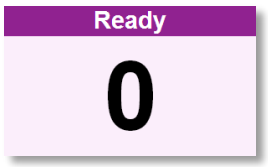
Example 1: Assume that we have a Ready Agents KPI and we want to display values less than 8 in red, values between 8 and 12 in black and values greater than 12 in green. The KPI title should simply be "Ready". In the pictures below, the Demo Agents Ready KPI Thresholds and Ranges are not set:

Figure 14: Thresholds and Ranges Example Part 1



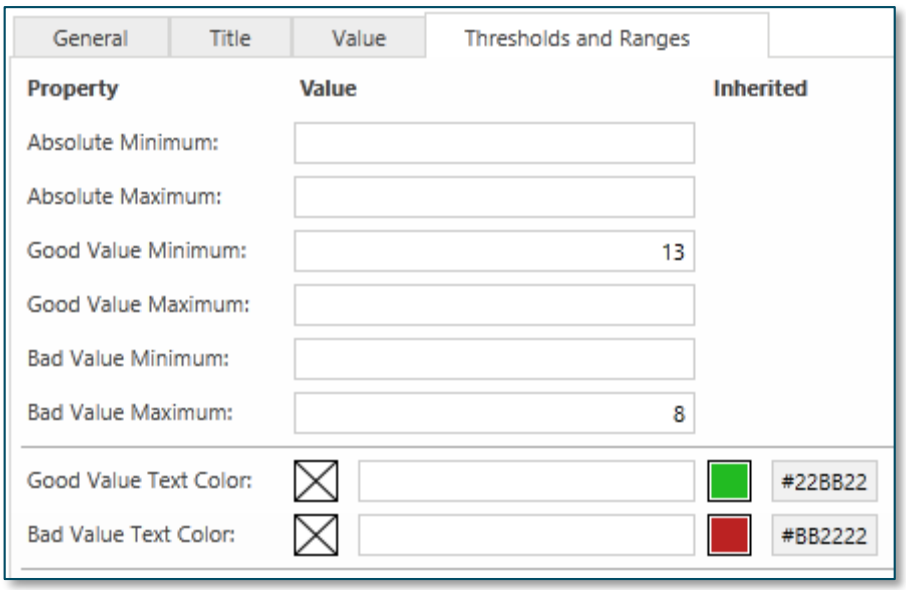
Then we change the title to "Ready":





Then we are ready to change the thresholds, Good Value Minimum to 13 and Bad Value Maximum to 8. For Good and Bad Value Colors we use the default settings (Green and Red). Set the Value Background Color property in Value tab to black. Those are exactly the colors we need for our example:

Figure 15: Thresholds and Ranges Example Part 2



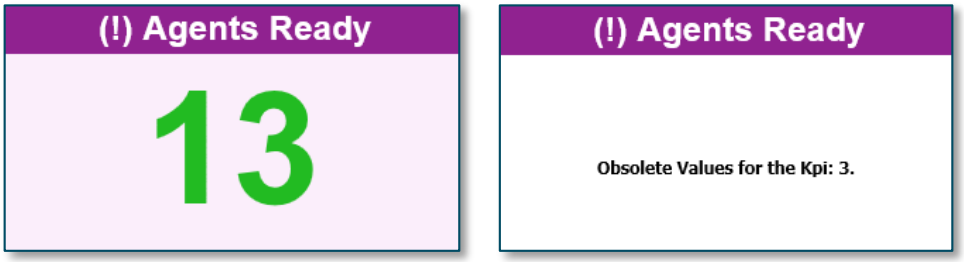
Security

Refer to section Access Privileges *4.12* and Security Mechanism *Chapter 5* for Source security fundamentals.

KPI Errors

If an error occurs for a KPI (*Figure 16*), an error notification will be displayed next to the KPI title and the last calculated value will be shown. Clicking (!) text will display the error message. If the error message does not guide you to fix the error, please contact us via email at support@2Ring.com.

Figure 16: KPI Error



4.3.3. KPI Intervals

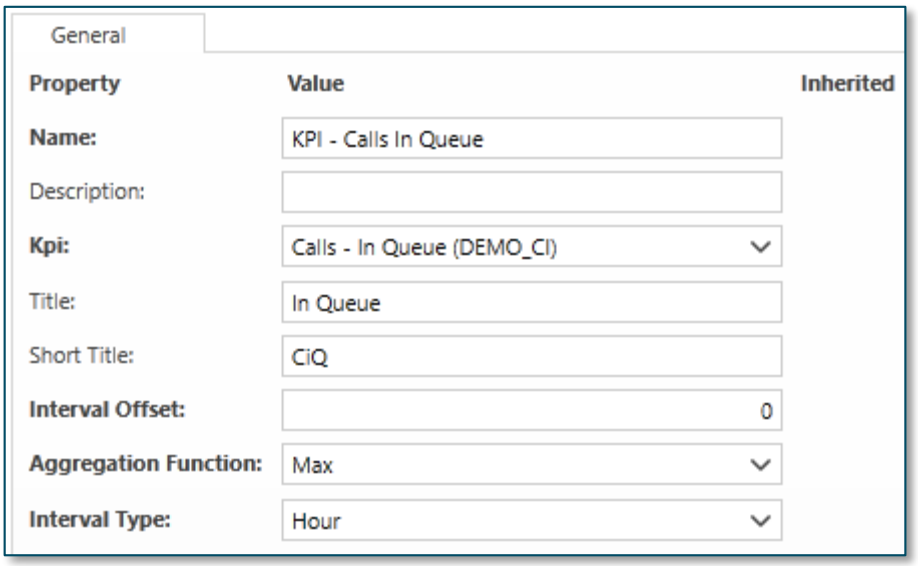
A KPI Interval tracks values of a KPI in a given time interval. In the tracked interval, aggregate functions such as: Minimum, Maximum, Last or First value can be displayed. KPI Intervals are useful for comparison to analyze contact center efficiency over time. The time interval is specified using an interval type (15 minutes, 30 minutes, hours, days) and an offset from the current time interval.

When users create a new KPI Interval, 1 tab is available:

- **General** - common information like KPI Interval name, interval used to calculate KPI, etc.

General

Figure 17: General



In the General tab, users can set these properties:

Required:

- **Name** - name of the KPI Interval, used as a reference in Sequence or Layout configuration.
- **KPI** – The KPI of which the tracked values should be displayed.
- **Interval Offset** – shifted Interval Type (15 minutes, 30 minutes, hours, days) from the current time. Value entered is an integer (0, 1, 2, etc.). Zero specifies current interval. The offset specifies the nth previous interval.

  Example: Current time is 15:20 and Interval Type is 15 minutes.
  - Offset value: 0 – calculated interval data will be from 15:15 to 15:20 (till 15:30).
  - Offset value: 1 - calculated interval data will be from 15:00 to 15:15.
  - Offset value: 2 - calculated interval data will be from 14:45 to 15:00.

  Example: Current time is 15:20 and Interval Type is 30 minutes.
  - Offset value: 0 – calculated interval data will be from 15:00 to 15:20 (till 15:30).
  - Offset value: 1 - calculated interval data will be from 14:30 to 15:00.
  - Offset value: 2 - calculated interval data will be from 14:00 to 14:30.

Example: Current time is 15:20 and Interval Type is hour.

- Offset value: 0 – calculated interval data will be from 15:00 to 15:20 (till 16:00).
- Offset value: 1 - calculated interval data will be from 14:00 to 15:00.
- Offset value: 2 - calculated interval data will be from 13:00 to 14:00.

Example: Current time is 15:20 and Interval Type is day.

- Offset value: 0 – calculated interval data will be from 00:00 to 15:20 (till 24:00).
- Offset value: 1 - calculated interval data will be -1 day (00:00 to 24:00).
- Offset value: 2 - calculated interval data will be -2 day (00:00 to 24:00).

- **Aggregation Function** – type of aggregate function performed when tracking the KPI interval data.
  - Minimum – the minimum tracked value in the interval data set.
  - Maximum – the maximum tracked value in the interval data set.
  - First – first tracked value in the interval data set.
  - Last value – last tracked value in the interval data set.
- **Interval Type** – interval used to track KPI value. An interval can be 15 minutes, 30 minutes, hours or days.

Optional:

- **Description** – text description of KPI interval.
- **Title** - title of the KPI Interval, displayed at the top.
- **Short Title** – title used when KPI Interval is displayed in a Ticker (Will be implemented in future release).

Notice: KPI Intervals cannot be used in Tickers.

4.3.4. Grids

A Grid displays tabular data from a defined query (Grid calculation). In the following example below (*Figure 18*) the states of agents are displayed from Grid calculation Agents - States (UCCE). Users can choose from predefined Grid calculations.

Figure 18: Grid - Agent States

Agent States

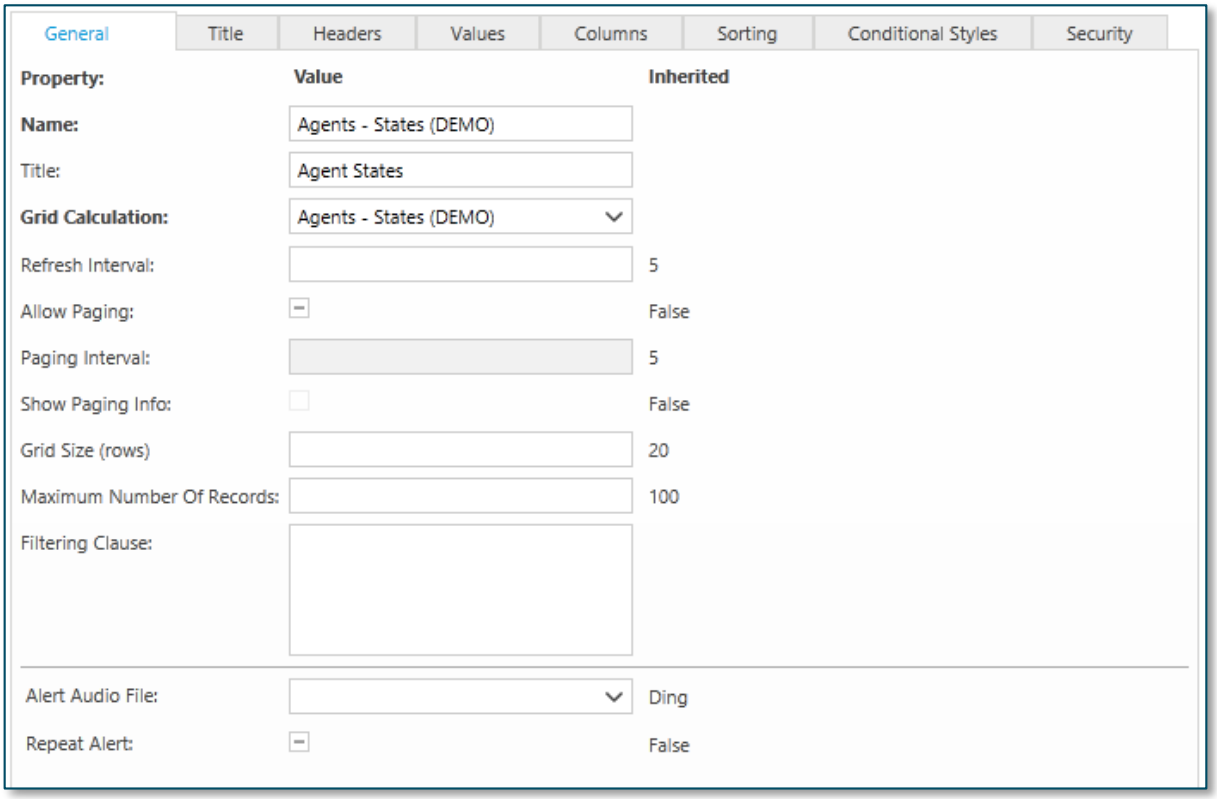
Agent	State	Reason	Duration
Zaliberova Lucia	Logged Out		
Valentovic Peto	Logged Out		
Zuzcak Marius	Logged Out		
Cizmarik Matej	Logged Out		
Bielik Martin	Logged Out		
Moravek Miro	Logged Out		
Orsag Jaro	Logged Out		
Sitina Peto	Not Ready	Break	00:00:27

When users create a new GRID, 6 tabs are available to them (*Figure 19*):

- **General** - common information like Grid name, refresh interval, etc.
- **Title Style** - definition of how the Grid title looks.
- **Column Headers Style** - styling applied to all column headers in the Grid.
- **Column Values Style** - styling applied to all column values in the Grid.
- **Columns** - definition of which columns are displayed in the Grid and styling of individual columns which can override settings on tabs Column Headers Style or Column Values Style for a specific column(s).
- **Conditional Styles** – styling applied to all rows that meet specified expression.
- **Sorting** - sorting of columns.
- **Security** – Security settings for Grid.

General

Figure 19: Grid tab General



In the General tab, users can set these properties:

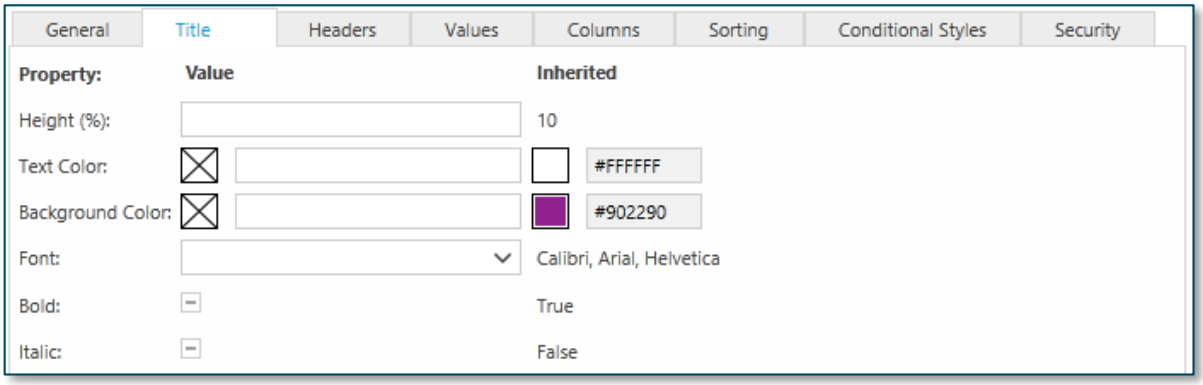
Required:

- **Name** - name of the Grid, used as a reference in the Sequences or Layout configuration.
- **Grid Calculation** - users can choose one of the predefined Grid calculations. Optional:
- **Title** - title displayed on the header.
- **Refresh Interval** - value in seconds which defines the interval of checking Grid configuration changes and also reading new Grid values.
- **Allow Paging** - enable/disable paging on Grid. Paging occurs when the number of records returned from server is larger than the Grid size property, therefore data will be split into multiple pages. When paging is enabled refresh interval is disabled and new Grid values are read after the last page is shown.
- **Paging Interval** - value in seconds the current page is on the screen before the next page is displayed.
- **Show Paging Info** - display current page with total number of pages, in the form: current page/total number of pages. (Ex: 3/5, current page is 3 and total number of pages is 5).
- **Grid Size (rows)** - the number of rows displayed on one page.
- **Maximum Number Of Records** - the maximum number of records retrieved from the server.

- **Filtering Clause** - allows filtering tabular data by providing a SQL where clause in the form: condition, omit the where keyword. The following arithmetic operators are supported: =, >, <. The following logical operators are supported: AND, OR, LIKE, IN, BETWEEN. Use single quotes for text strings.
  Example: State LIKE 'Ready' AND Agent = 'Smith'
- **Alert Audio File** - Audio file to be played when a table cell in a column has transitioned from Good/Neutral value range into bad value range.
- **Repeat Alert** - Continuously repeat alert audio file while a table cell in a column stays in Bad Value range.

Title

Figure 20: Grid tab Title



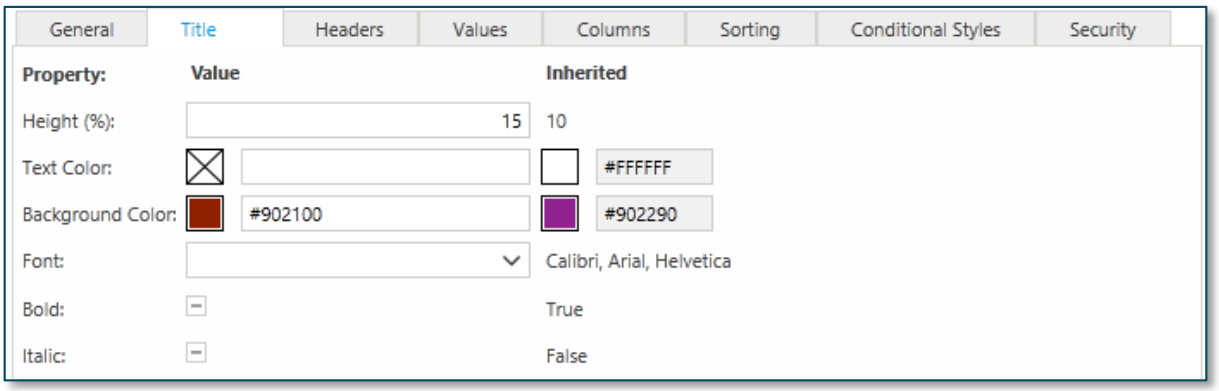
In the Title tab (*Figure 20*), users can set these properties for modifying the Grid title:

Optional:

- **Height (%)** - this value describes the height of the rectangle where the title is placed and also the height of the title text. This value is a percentage of the window size and users should set it up while using the preview option (placed at the bottom of the screen).
- **Text Color** - color of the text. The default value is white (#FFFFFF).
- **Background Color** - background color of the text. The default value is #902290.
- **Font** - text font.
- **Bold** - checkbox indicating if the text is bold. If set to True, the text is bold.
- **Italic** - checkbox indicating if the text is italic. If set to True, the text is italic.

Example: Set the title of the Grid to a background color of: #902100, font to: Tahoma and height of Grid to 15%. (*Figure 21*).

Figure 21: Set background color of Grid title

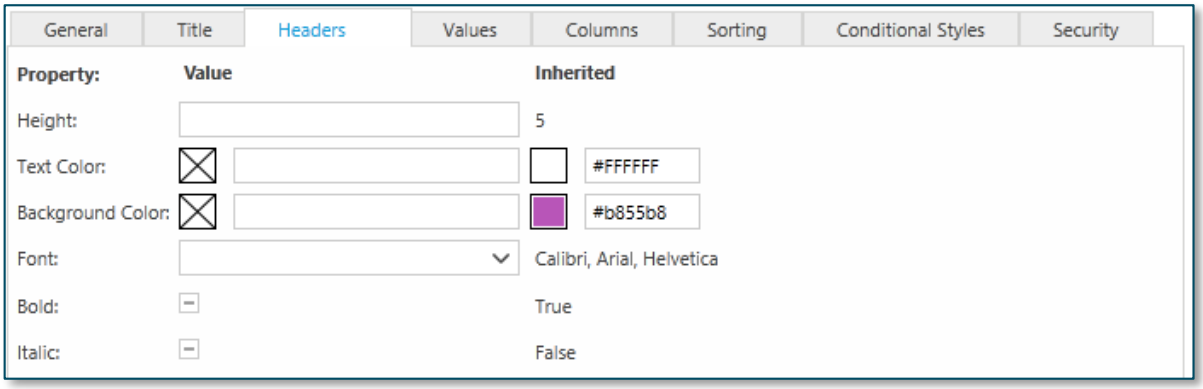


Agent States

Agent	State	Reason	Duration
Zaliberova Lucia	Logged Out		
Valentovic Peto	Logged Out		
Zuzcak Marius	Logged Out		
Cizmarik Matej	Logged Out		
Bielik Martin	Logged Out		
Moravek Miro	Logged Out		
Orsag Jaro	Logged Out		
Sitina Peto	Not Ready	Break	00:00:59
Zaliberova_sup Lucia	Logged Out		

Headers

Figure 22: Grid tab Headers



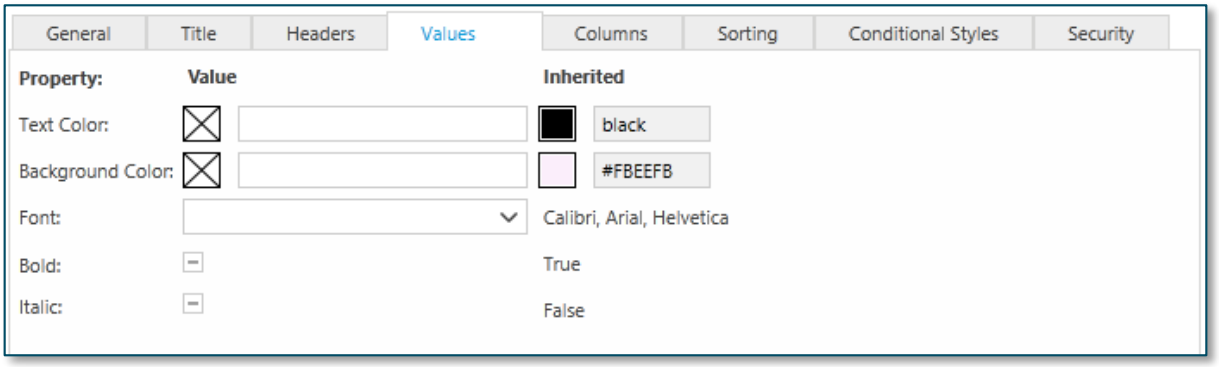
In the Headers tab (*Figure 22*), users can set the same styling properties for all column headers. Users can set these properties:

Optional:

- **Height (%)** - this value describes the height of the rectangle where the column header is placed and also the height of the column header text. This value is a percentage of the window size and users should set it up while using the preview option (placed at the bottom of the screen).
- For property explanations of Text Color, Background Color, Font, Bold, Italic see properties in (*Figure 19*).

Values

Figure 23: Grid tab Values

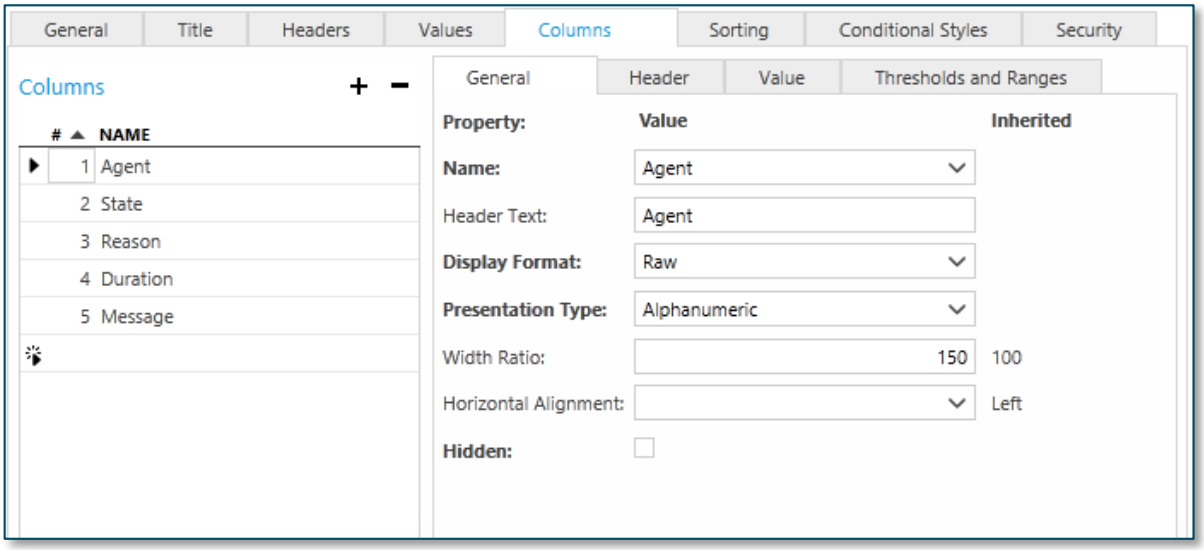


In the Values tab (*Figure 23*), users can set the same styling properties for all column values. Users can set these properties:

For property explanations of Text Color, Background Color, Font, Bold, and Italic see properties in (*Figure 20*).

Columns

Figure 24: Grid tab Columns



In the Columns tab (*Figure 24*), there is a list of columns that will be displayed. Each column has properties that override the styling of Column Headers Styles or Column Values Styles. Each column contains a General, Title Style, Value Style and Thresholds and Ranges tab.

General

In the General tab of a column (*Figure 24*), users can set these properties:

Required:

- **Name** - The name of the column.
- **Display Format** - display format of the column value. Values can be such as number (1284), percentage 98%, etc.
- **Presentation Type** - graphical representation of column. For simple text or number values, use presentation type: Alphanumeric.
- **Hidden** - if checked, column is not displayed in Grid.

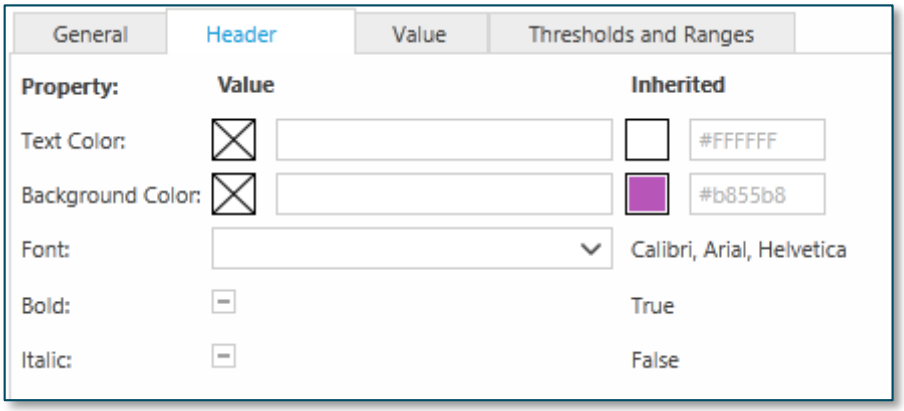
Optional:

- **Header Text** - the title of the column.
- **Width Ratio** - The ratio of the column width compared to other columns in the Grid. The input value is an integer. Example: Column 1 has width ratio: 200, Column 2 has width ratio: 100, therefore Column 1 will be twice as large as Column 2. By default columns with an empty width ratio have a value of 100.
- **Horizontal Alignment** - horizontal alignment of text in column.

Header

In the Header tab of a column (*Figure 25*) users can set these properties to modify the look of a column header. See (*Figure 20*) for property explanations of Text Color, Background Color, Font, Bold, Italic.

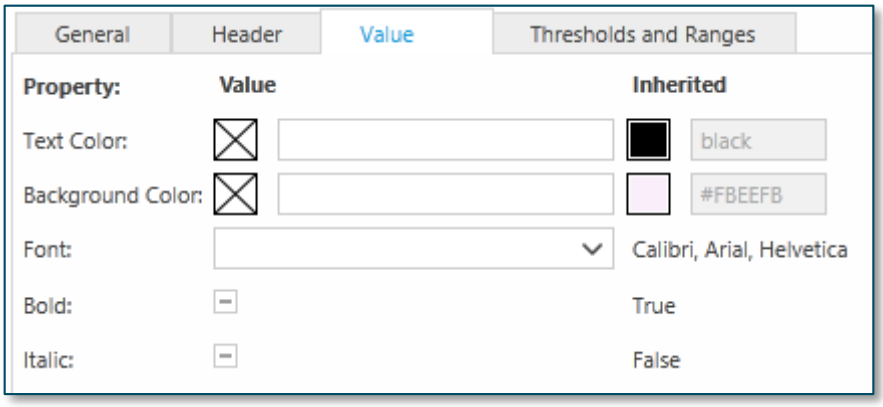
Figure 25: Grid tab Header for column



Value

In the Value tab of a column (*Figure 26*) users can set these properties to modify the look of column cells. (*Figure 20*) for property explanations of Text Color, Background Color, Font, Bold, Italic. These settings always override the Grid's general settings.

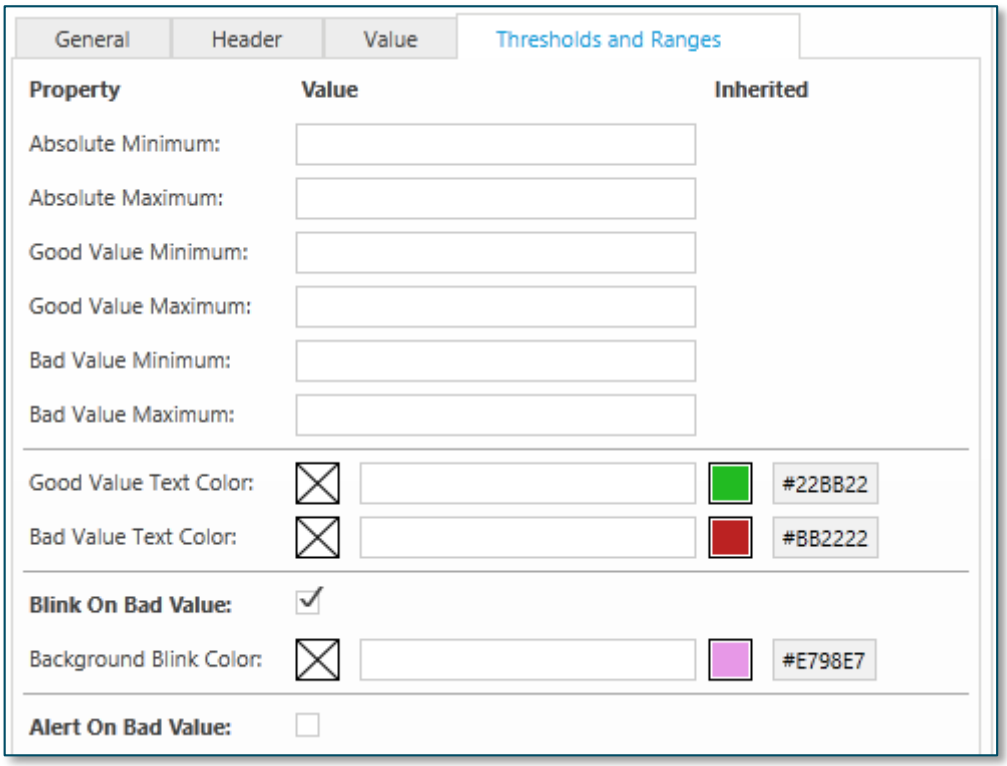
Figure 26: Grid tab Header for column



Thresholds and Ranges

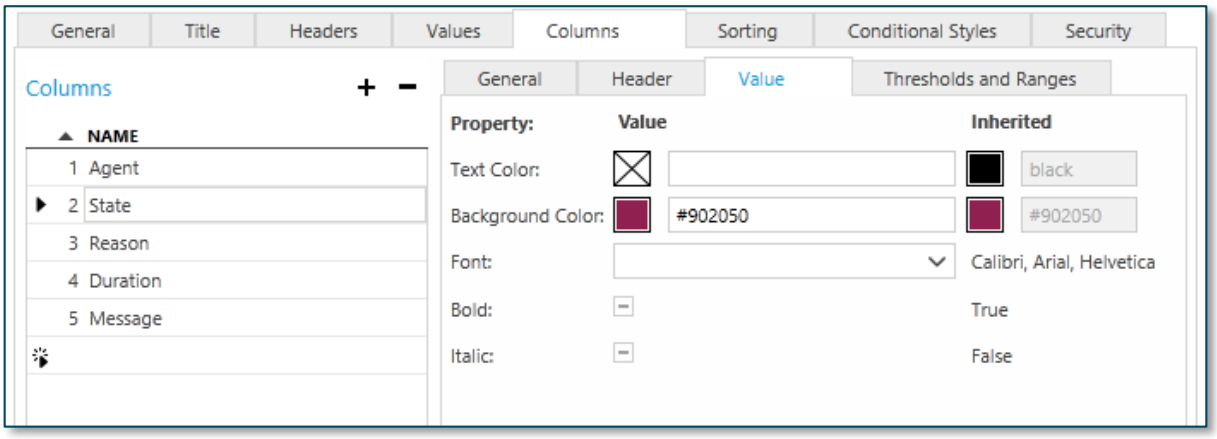
In the Thresholds and Ranges tab of a column (*Figure 27*) users can set these properties. For property explanations see (*Figure 12*). The Thresholds and Ranges are applied to the entire column. Each cell value that meets the thresholds will have the properties applied. Checking Alert On Bad Value will play a sound defined in Grid General tab (*Figure 19*).

Figure 27: Thresholds and Ranges



Example: Set the State column values to a background color of #902050 (*Figure 28*).

Figure 28: Set background of State column

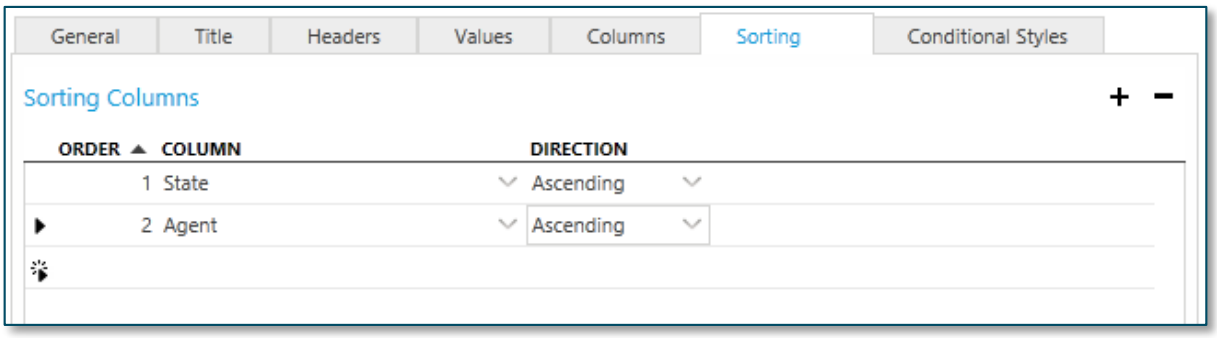


Agent States 1/2			
Agent	State	Reason	Duration
Pierce Brosnan	Talking		00:03:51
Sean Connery	Not Ready	Break	00:02:00
Daniel Craig	Talking		00:01:17
Roger Moore	Reserved		00:00:23
Timothy Dalton	Work		00:03:52
Barry Nelson	Ready		00:03:03
Lara Croft	Not Ready	Break	00:03:21

Sorting

In the Sorting tab (*Figure 29*), users can sort the tabular grid by columns with a certain order.

Figure 29: Sorting tab



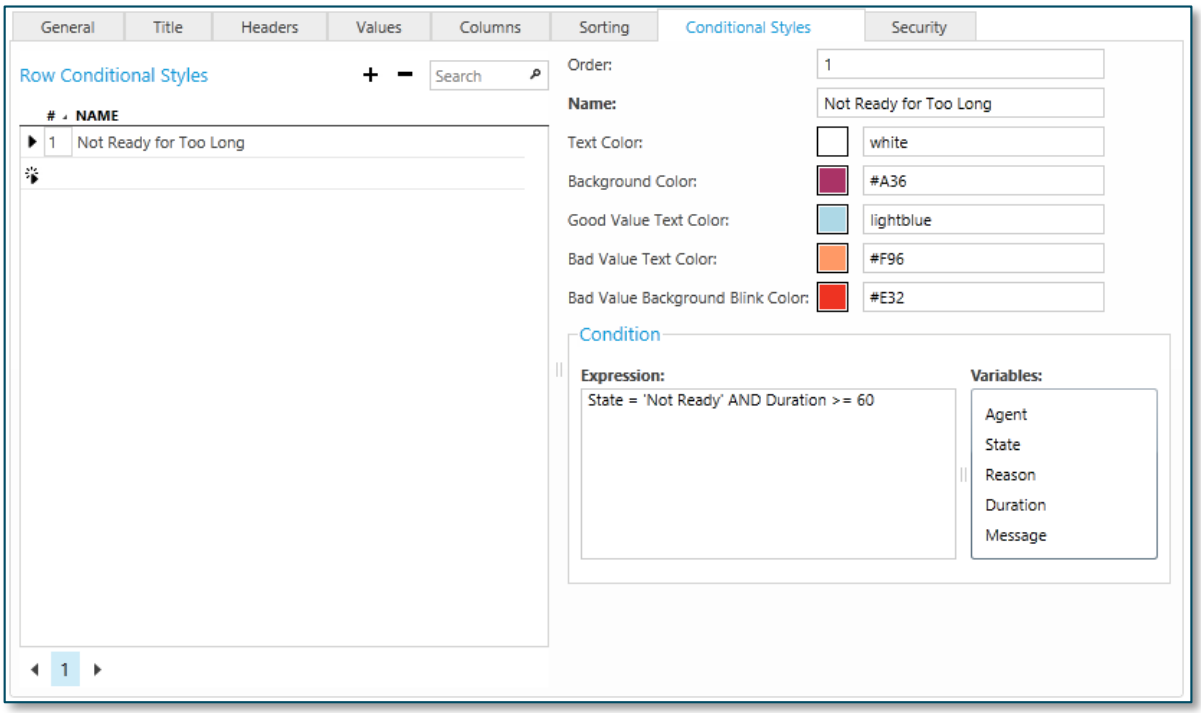
The following properties must be set for each column to be sorted:

- **Order** - the order in which the column is sorted.
- **Column** - the column name.
- **Direction** - Ascending – values start from lowest to highest or Descending – values start from highest to lowest.

Conditional Styles

In the Conditional Styles tab (*Figure 30*), Grid row's style can be changed based on certain conditions. These settings will override both the Grid and Column style settings.

Figure 30: Conditional Styles tab



The Grid can have any number of different conditional styles. In case there's more, their order states their priority. The first one being the most important one, etc.

The following properties can be set for each conditional style:

- **Order** – the order in which these conditions are calculated
- **Name** – name of the conditional style
- **Text Color** – text color of the affected row
- **Background Color** – background color of the affected row
- **Good Value Text Color** – overrides the text color of a cell in the affected row when the cell's value is in the good threshold set on its column
- **Bad Value Text Color** – overrides the text color of a cell in the affected row when the cell's value is in the bad threshold set on its column
- **Bad Value Background Blink Color** – overrides the blink color of a cell in the affected row when blink on bad value is enabled and the cell's value is in its column's bad threshold

> **Notice:** Bad Value Text Color, Good Value Text Color and Bad Value Background Blink Color should be set when the row color scheme clashes with column color settings.

- **Expression** – a logical expression. Use parentheses to group clauses and force precedence. The following operators can be used:
  - **Boolean operators** – AND, OR, NOT
  - **Comparison operators** – <, >, <=, >=, <>, =, IN, LIKE
  - **Arithmetic operators** – +, -, *, /, %

Example: Using Grid settings from *Figure 30.* The Expression "State='Not Ready' AND Duration >=60" changes all rows where agents are Not Ready for more than a minute to the configured style. The result can be seen in *Figure 31*.

Figure 31: Grid with an active Conditional Style

Agent States 1/2

Agent	State	Reason	Duration
Pierce Brosnan	Not Ready	Lunch	00:00:33
Sean Connery	Not Ready	Training	00:03:10
Daniel Craig	Ready		00:02:40
Roger Moore	Logged Out		00:00:51
Timothy Dalton	Reserved		00:03:15
Barry Nelson	Work		00:01:37
Lara Croft	Not Ready	Break	00:03:09

Evaluation of Cell style

The look of a cell can be changed based on a number of different settings. They are evaluated in the following order:

1. Grid Value and Header settings
2. Column Value and Header settings
3. Column Threshold and Ranges settings
4. Conditional Style settings

This means that Conditional Style settings will have the biggest priority and will overwrite all previous settings that have not been left blank, then on the remaining settings the Column Threshold and Ranges settings are applied, etc.

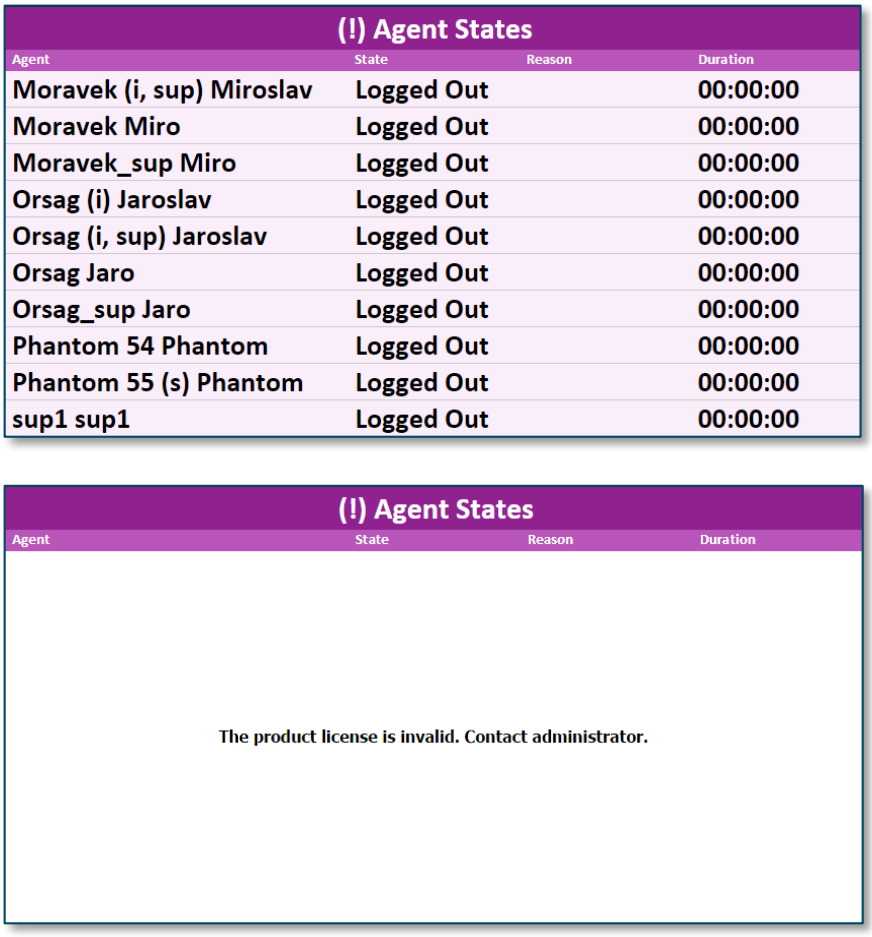
Security

Refer to section Access Privileges *4.12* and Security Mechanism *Chapter 5* for Source security fundamentals.

Grid Errors

If an error occurs for a Grid (*Figure 32*), an error notification will be displayed next to the Grid title and the last calculated values will be shown. Clicking (!) text will display the error message. If the error message does not guide you to fix the error, please contact us via email at support@2Ring.com.

Figure 32: Grid Error



4.3.5. Banners

A Banner is a scrolling or static text area that is usually used for displaying important announcements on a wallboard. The Banner is also able to display an image, such as a company logo or display the current time.

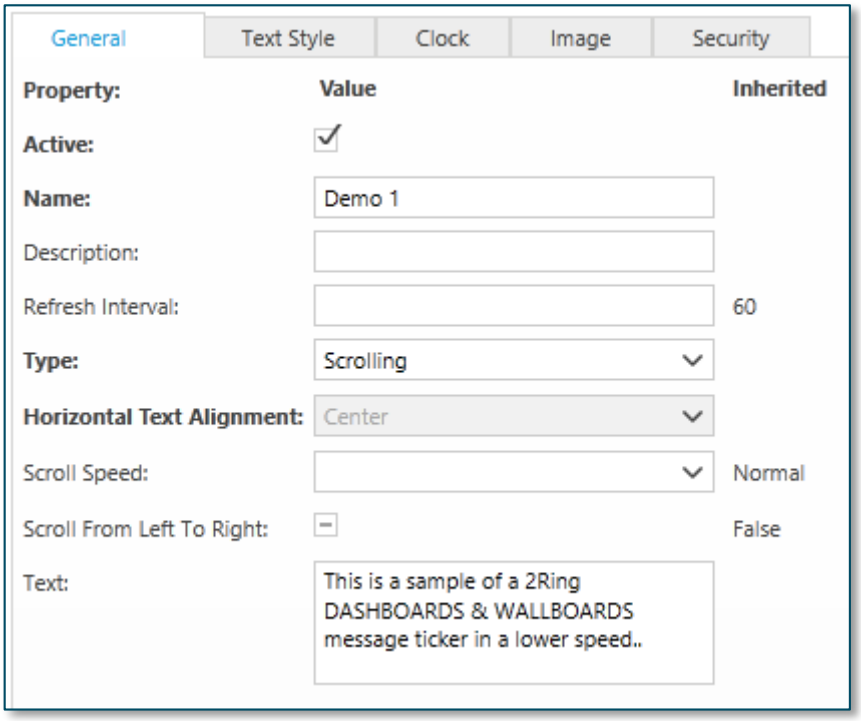
The Banners configuration enables adding, editing, removing or copying existing banners. The detail screen configures the displayed text, image, clock, and text style of a selected banner.

When users create a new Banner, 4 tabs are available to them:

- **General** - common information like Banner name, refresh interval, etc.
- **Text Style** - settings for displaying text.
- **Clock** - settings for configuring clock.
- **Image** - settings for configuring image.
- **Security** – Security settings for Banner.

General

Figure 33: General Settings



In the General tab (*Figure 33*), users can set these properties:

Required:

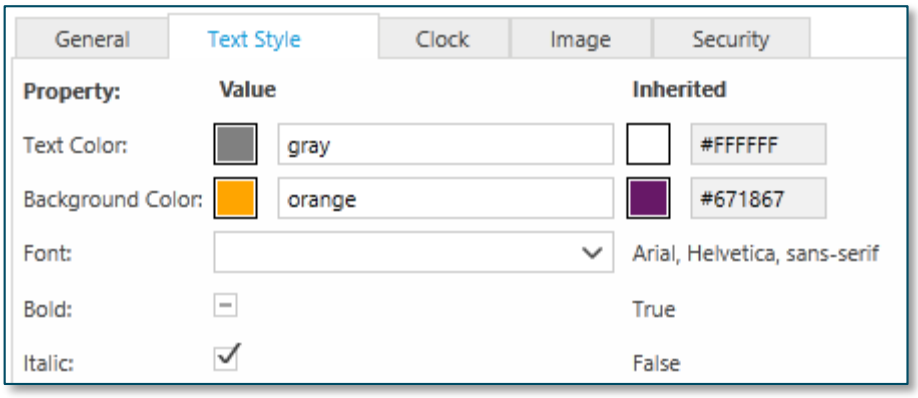
- **Active** – the banner text is displayed if the check box is checked. Otherwise, it displays a clock or is simply empty.
- **Name** – unique name of the banner.
- **Type** – the banner can be static or scrolling. A static banner does not have moving text. A scrolling banner has moving text.
- **Horizontal Text Alignment** – the alignment of the banner text when selected type is Static. The text can be aligned center, left or right.

Optional:

- **Description** – text describing the banner.
- **Refresh Interval** – the interval in seconds when the configuration changes are checked. If the value is not set, the default interval of 5 seconds is used.
- **Scroll Speed** – speed of text scrolling when selected type is scrolling.
- **Scroll From Left To Right** – scroll banner text from left to right when selected type is scrolling.
- **Text** – text displayed in the banner.

Text Style

Figure 34: Text Style Settings



In the Text Style tab (*Figure 34*), users can set these properties:

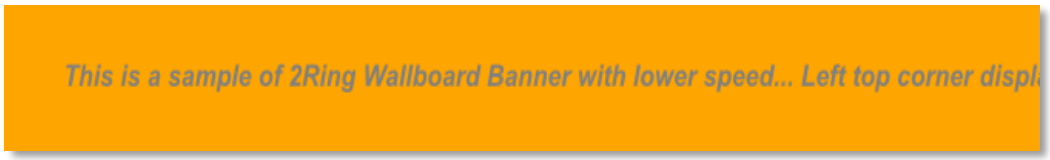
- **Text Color** – color of the displayed text. The default value is white (#FFFFFF).
- **Background Color** – background color of the displayed text. The default is red (#FF3333).
- **Font** – font family used for the displayed text. The default is Tahoma.
- **Bold** – indicates if the font for the displayed text is bold. The default is bold.
- **Italic**– indicates if the font for the displayed text is italic. The default is non-italic.

Clicking the Preview button located at the bottom of the screen will display a preview of the banner with its current settings. A banner with Active text (2Ring Banner) and default Text Style settings is shown in *Figure 35*.

Figure 35: Banner with Default Text Style

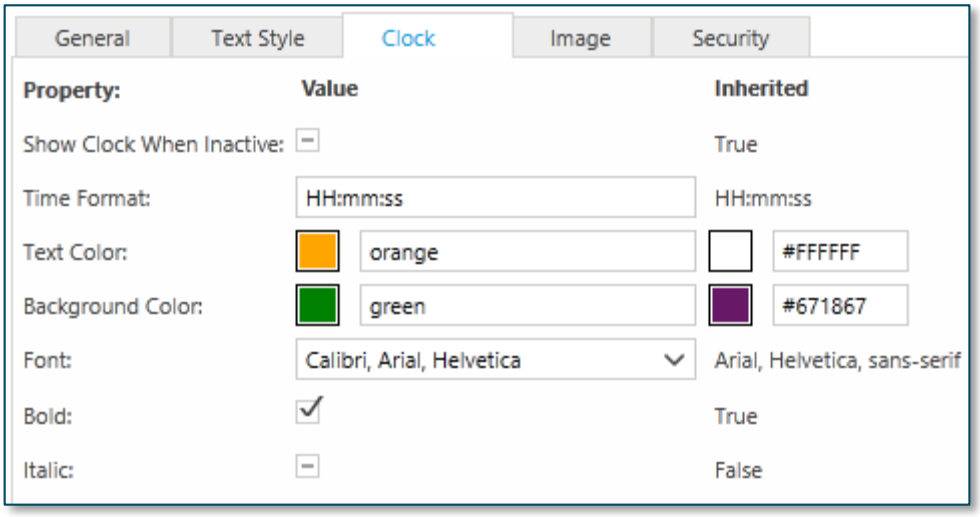
The preview of a banner with settings according to *Figure 34*

Figure 36: Banner with Changed Text Style



Clock

Figure 37: Clock Settings



In the Clock tab, users can set these properties:

- **Show Clock When Inactive** – indicates if the digital clock should be displayed if the banner text (Active field in General settings) is inactive. Time is displayed by default.
- **Time Format** – is used for formatting the time on the clock. The default format is HH:mm:ss (hours:minutes:seconds). If only a single letter is entered, then only the necessary number of digits are displayed (HH:mm:ss = 08:50:03, H:m:s = 8:50:3). Possible valid values are:
  - **HH** – Hours in 24-hour format
  - **hh** – Hours in 12-hour format
  - **mm** – Minutes
  - **ss** – Seconds
  - **tt** – displays if the time is AM/PM
- **Text color** – color of the displayed time. The default color is white (#FFFFFF).
- **Background color** – background color of the displayed time. The default is red (#FF3333).
- **Font** – font family used for displaying time. The default font is Tahoma.
- **Bold** – indicates if the font for the displayed time is bold. The time font is bold by default.
- **Italic** – indicates if the font for the displayed time is italic. The time font is non-italic by default.

Clicking the Preview button located at the bottom of the screen will display a preview of the banner with its current settings. A banner with the checkbox Active text (see the General settings) unchecked and default Clock settings is shown in Figure 38.

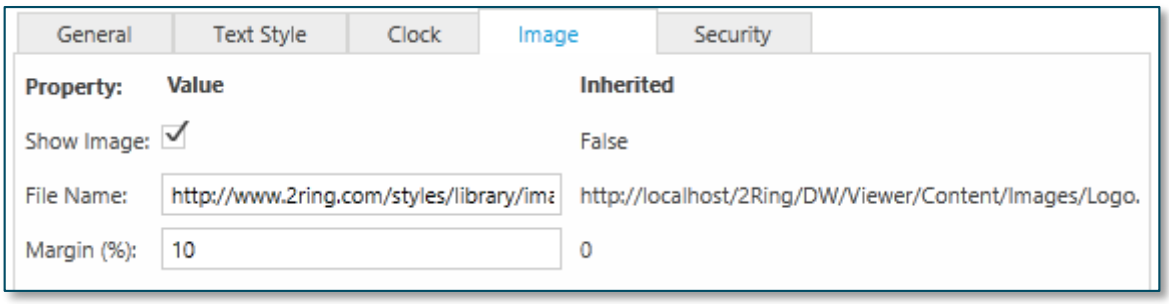
Figure 38: Clock banner with default settings

The preview of a banner with settings according to *Figure 37* is shown in *Figure 39*.

Figure 39: Clock Banner

Image

Figure 40: Image Settings



In the Image tab, users can set these properties:

- **Show Image** – indicates if the image is displayed on the left side of the banner. The image is stretched according to the browser height. The image is not displayed by default.
- **File Name** – URL address of the image.
- **Margin (%)** – margin around the image in percentage.

The preview of a banner with an active image is shown in *Figure 41.*

Figure 41: Banner with Image

Security

Refer to section Access Privileges *4.12* and Security Mechanism *Chapter 5* for Source security fundamentals.

4.3.6. Tickers

A Ticker is a collection of scrolling KPIs. Tickers are beneficial for wallboards that have a limited amount of space available.

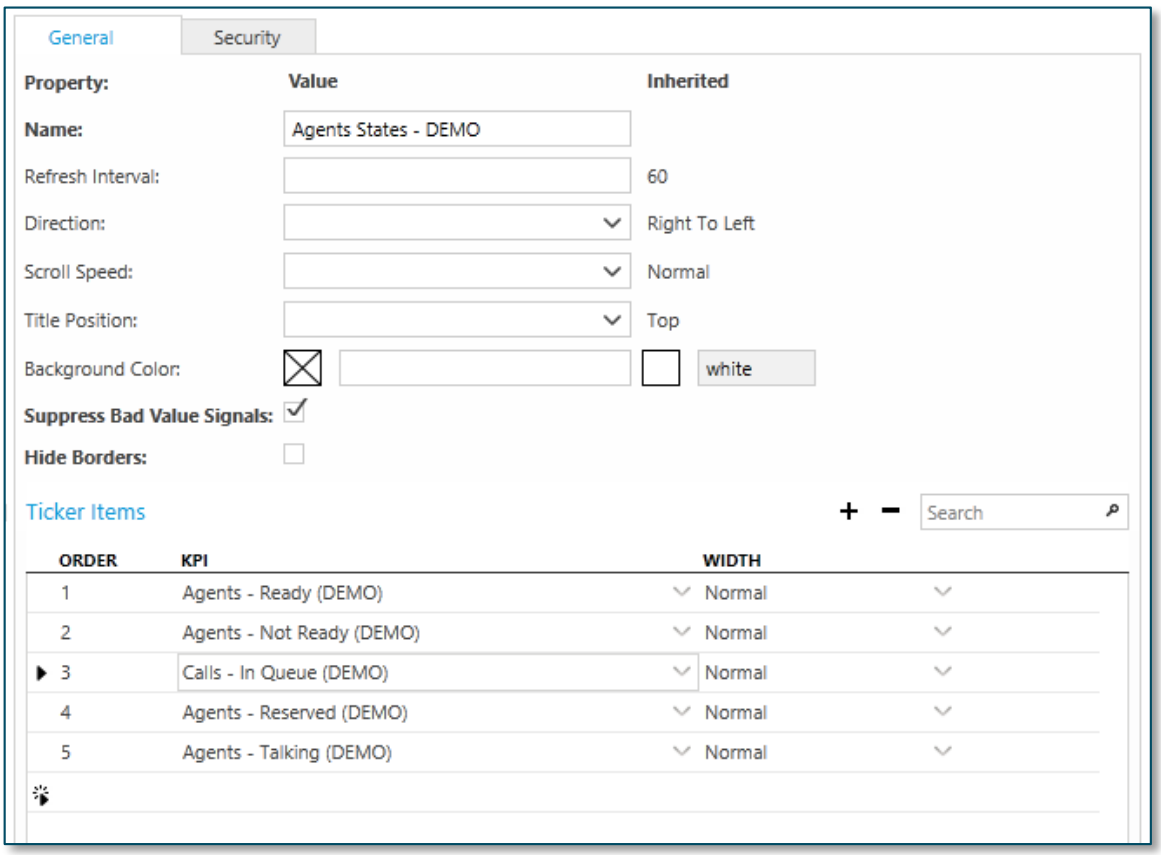
The Ticker configuration enables adding, editing, removing or copying existing tickers.

When users create a new Ticker, 2 tabs are available:

- **General** - common information like Ticker name, refresh interval, etc.
- **Security** – Security settings for Ticker.

General

Figure 42: General Settings



In the General tab (*Figure 42*), users can set these properties:

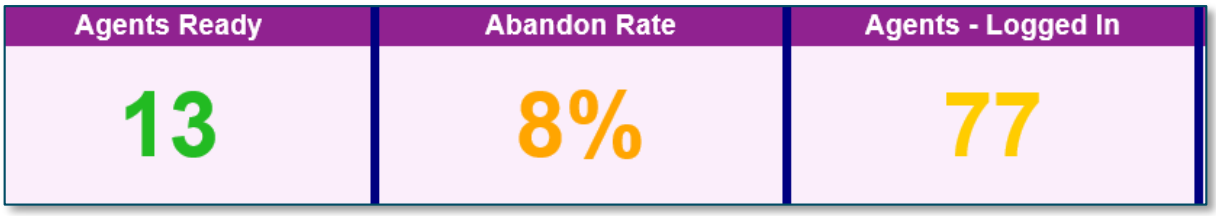
- **Name** – unique name of the ticker.
- **Refresh Interval** – the interval in seconds when the configuration changes are checked. If the value is not set, the default interval of 60 seconds is used.
- **Direction** – scrolling direction of KPIs.
- **Scroll Speed** – speed of scrolling KPIs. To create new scroll speeds (see *4.7.7*)
- **Title Position** – Placement of the KPI title. By default, the title positioned at the top.
- **Background Color** – the color behind the scrolling KPIs.
- **Suppress Bad Value Signals** – Turn off KPI blinking and KPI audio sounds when bad value threshold is met. Note: The KPI must have this configured.

- **Hide Borders** – remove space separation between KPIs. By default, KPIs are separated by
- **Ticker Items**
  - **Order -** the position of the KPI in the ticker sequence. Enter an integer.
  - **KPI –** the KPI to display.
  - **Width –** the width of the KPI in the ticker. New predefined widths can be created in section (*4.7.9*). This column is visible when Direction is set Left/Right or Right/Left.
  - **Height** - the height of the KPI in the ticker. New predefined heights can be created in section (*4.7.8*). This column is visible when Direction is set Top/Bottom or Bottom/Top.

Notice: KPI Intervals cannot be used in Tickers.

In the following example, the title position is set to Top and background color to Navy (*Figure 43*).

Figure 43: Ticker title position top



In the following example, the title position is set to Left (*Figure 44*). The KPI short title property is used for the title.

Figure 44: Ticker title position left

Security

Refer to section Access Privileges *4.12* and Security Mechanism *Chapter 5* for Source security fundamentals.

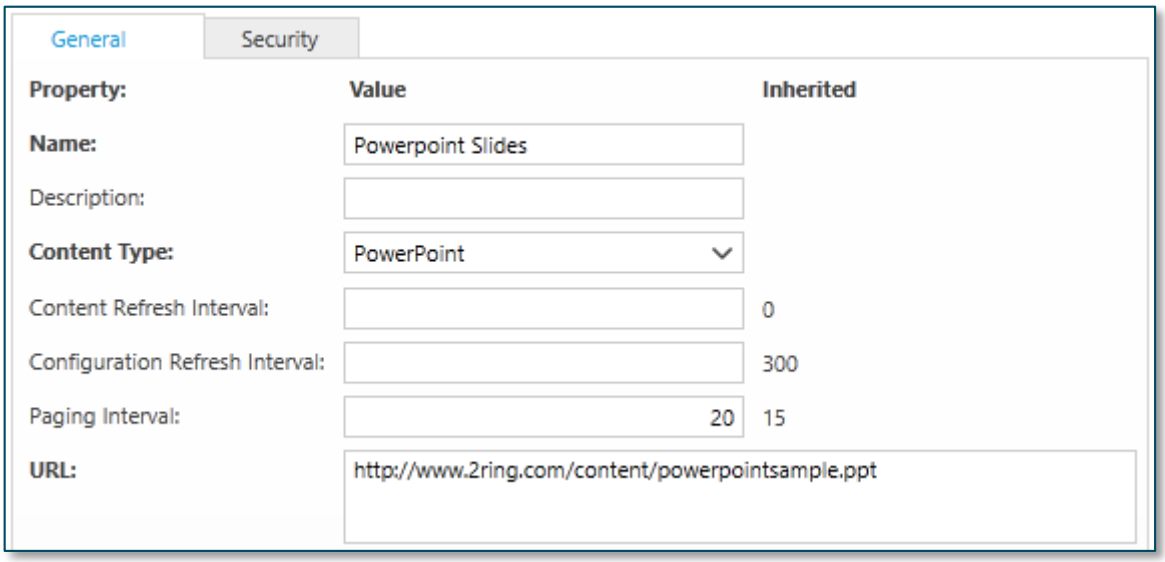
4.3.7. External

External content sources represent all supported content sources other than KPIs and banners. This includes web pages, PowerPoint presentations, images, Windows Media player supported media files and streams, and Adobe Flash SWF files.

When users create new External content, 2 tabs are available:

- **General** – common information like external content name, refresh interval, etc.
- **Security** – security settings for External content.

Figure 45: External Source Configuration



General

The configuration of an external source (*Figure 45*) consists of the following items:

- **Name** - Unique name of the external source, used as a reference in the Layout screen when the Description is not specified.
- **Description** - Description of the item, used as a primary reference in the Layout screen.
- **Content Type** - Type of the external source, where all available options are shown in *Figure 45* and have the following meaning:
  - **Web (Iframe)** - any web page accessible from the client's PC displayed in an Iframe. Supported by DESKTOP Client and WEB Client. Displaying a web page in an Iframe is not supported on certain web sites.
  - **Web (Native)** – any web page accessible from the client's PC displayed as a native website. Supported by DESKTOP Client. Displaying a web page in native mode causes the web page to be displayed in Compatibility mode (Internet Explorer 7).

ATTENTION! If you have a page with sound or a video content, the sound will play even if the layout is currently not visible.

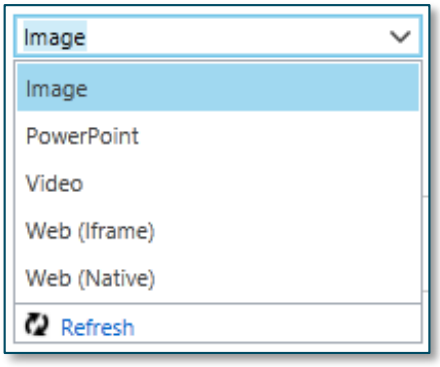
- **PowerPoint** - PowerPoint presentation. Supported by DESKTOP Client. To be able to see PowerPoint presentation on DESKTOP Client, the Microsoft PowerPoint application has to be installed on that PC.
- **Image** - image file supported by latest browsers. JPEG, GIF and PNG are widely supported. Supported by DESKTOP Client and WEB Client. It is stored either on the client's file system or on any web server accessible from the client's PC.
- **Video** - Microsoft Window Media player supported media file or a stream. Supported by DESKTOP Client.

- **Content Refresh Interval** - Applies to all external sources in DESKTOP Client/WEB Client. Interval in seconds which refreshes content in external content source. For example, for a Web content type, it means that the DESKTOP Client/WEB Client application will automatically refresh the specified web page every N seconds, where N is the Refresh Interval. Zero seconds will disable content refreshing.
- **Configuration Refresh Interval** – Interval in seconds which checks for any configuration changes made to the external content source.
- **Paging Interval** – Applies to PowerPoint content type source only. Slide rotation interval in seconds.
- **URL** - If the external source is stored on a file system accessible from the client computer, the URL is actually the full path to the file. To make sure the path is correct paste it into File Explorer.

  There are 3 URL formats that can be used.
  - C:\Files\presentation.pptx (only works if the resource is stored on the client computer directly)
  - File:///C:\Files\presentation.pptx
  - \\server\share\presentation.pptx

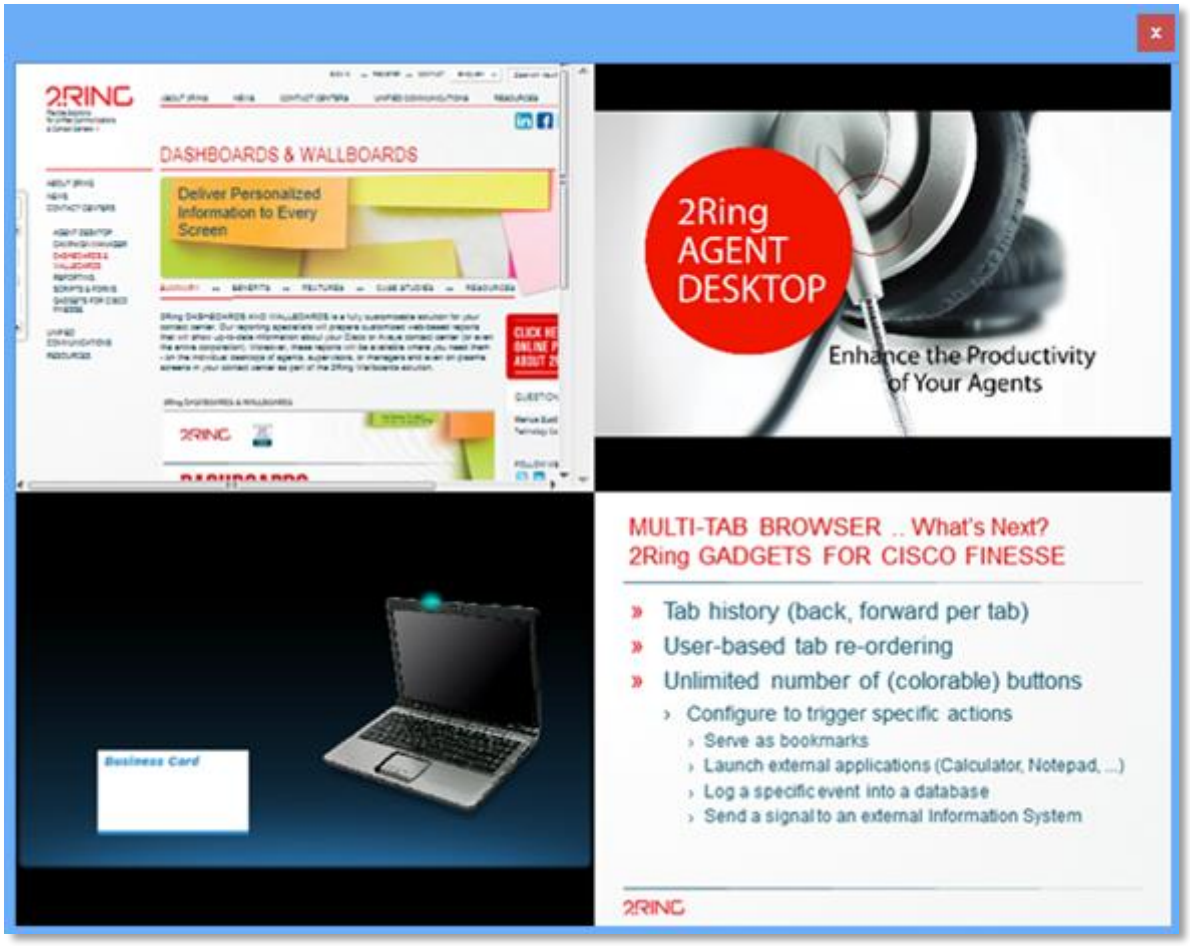
  If the external source is present on a web server, enter URL to the file (e.g. http://www.site.com/files/presentation.pptx).

Figure 46: Available External Source Types



An example of the DASHBOARDS & WALLBOARDS DESKTOP Client application with configured multiple external sources is in *Figure 47*. In the top left panel, there is a web page, and in the top right panel, there is a WMV media file. In the bottom left panel, there is another WMV media file presentation, and in the bottom right panel, there is a PowerPoint presentation.

Figure 47: Running Multiple External Sources inside DESKTOP Client



Security

Refer to section Access Privileges *4.12* and Security Mechanism *Chapter 5* for Source security fundamentals.

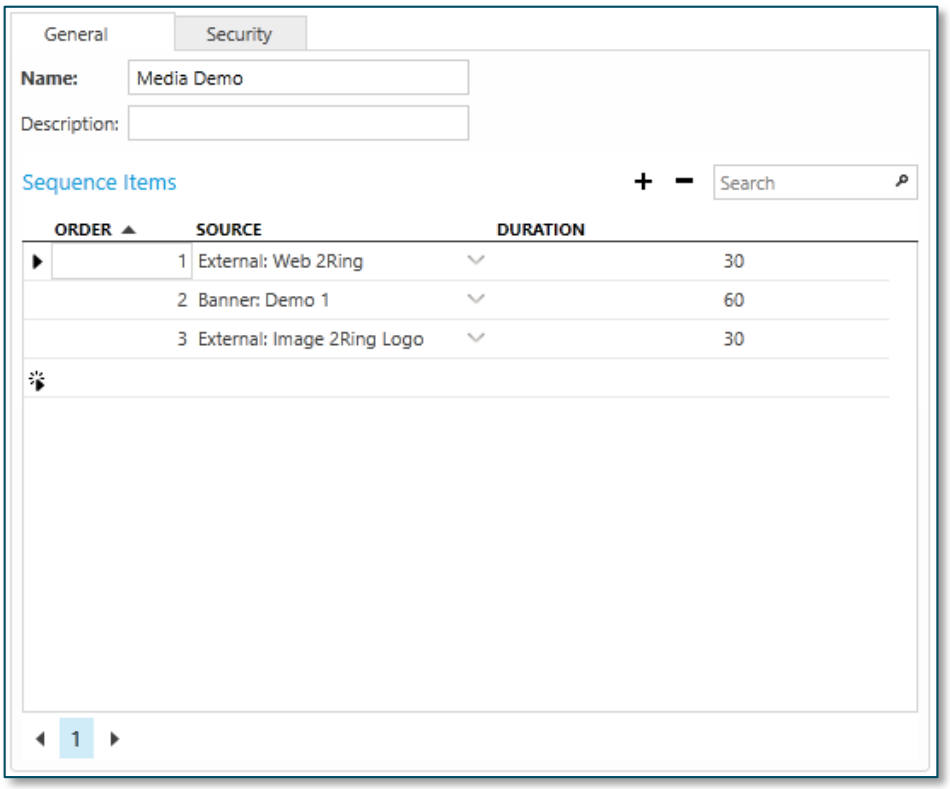
4.3.8. Sequences

A Sequence represents the flow of displayed content sources in a single segment of a layout in a defined order. Sequence configuration enables adding, editing, removing or copying an existing sequence.

When users create a new Sequence, 2 tabs are available:

- **General** - common information like sequence name, sequence items, etc.
- **Security** – Security settings for Sequences.

Figure 48: Sequence Settings Form



General

In the General tab (*Figure 48*), users can set these properties:

- **Name** – unique name of the content sequence.
- **Description** – description for this sequence.
- **Content Sequence Items** – list of content sources (Externals, Banners, KPIs) with the defined order and display duration.
  - **Order** - represents the content sequence item order.
  - **Content Source** – type the name of the existing content source in the text field as follows: Content_Source_Type:Source_Name (e.g. Banner: Demo1). Possible Content Source Types:
    - External
    - Banner
    - KPI
    - Grid

  To display list of all existing content sources, double click on text field and press key down.
  - **Duration** - represents the interval of the displayed content sequence in seconds.

Security

Refer to section Access Privileges *4.12* and Security Mechanism *Chapter 5* for Source security fundamentals.

4.4. Screens

4.4.1. Layouts

In the Layouts screen, the layout and the size of any Wallboard can be configured, i.e. how the Wallboards window is divided into multiple sections containing miscellaneous sources (KPIs, banners etc.) After a new layout is added to the list of layouts, the following screen is displayed (see *Figure 49*).

When users create a new Layout, 3 tabs are available:

- **General** - common information like layout name, design screen, etc.
- **Security** – Security settings for Layouts.

Users should enter a unique name for the new layout and then choose **Edit Layout...** button to configure the layout.

General

Figure 49: New Layout Configuration

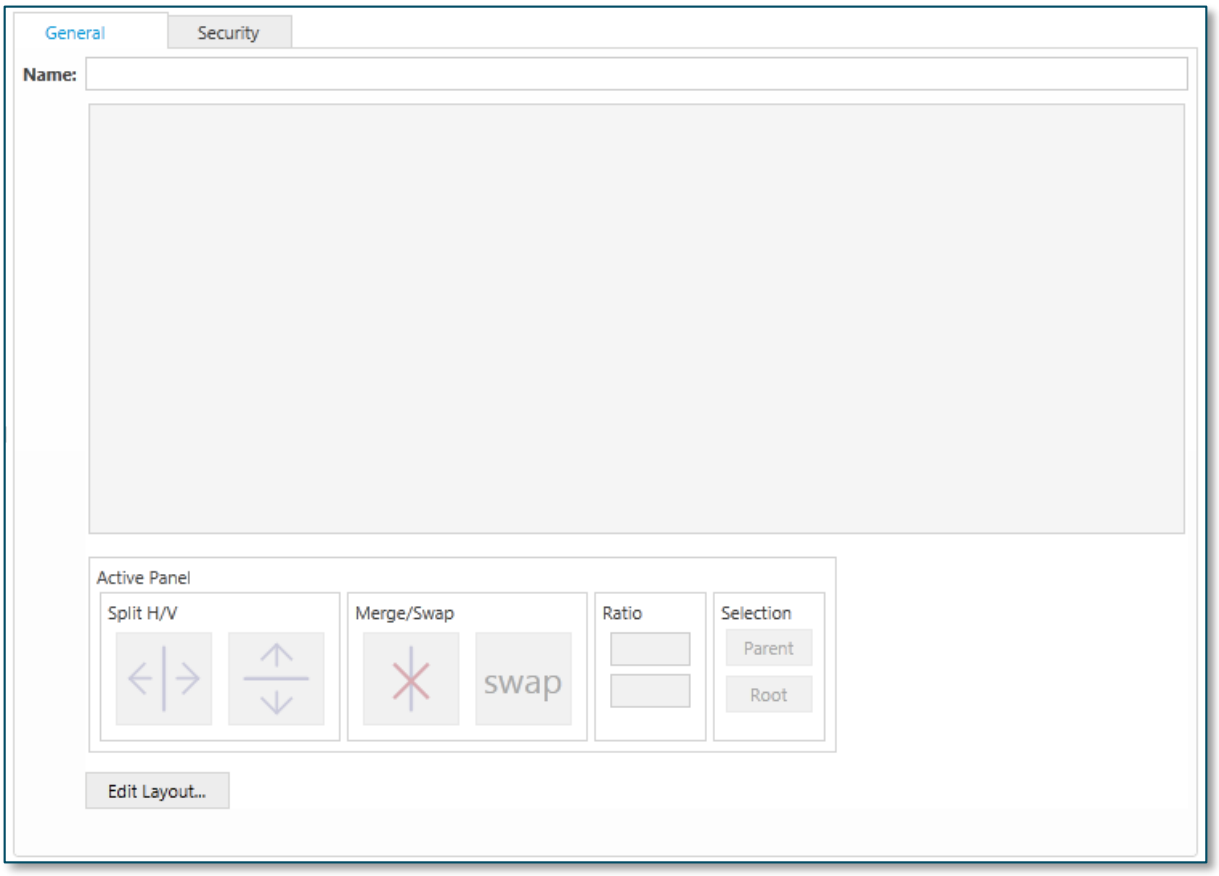
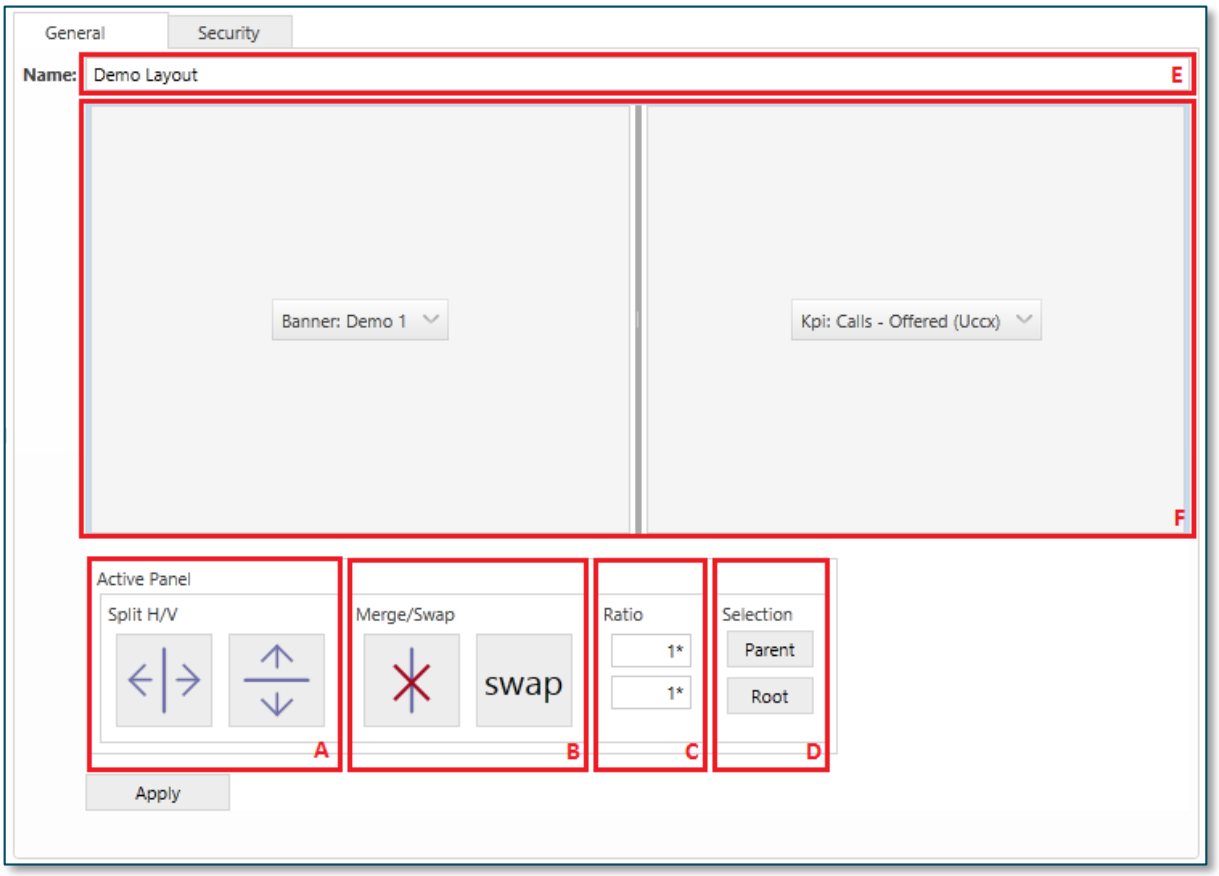


Figure 50: Layout Tools Description



The available layout related tools displayed in *Figure 50* have the following meanings:

- **Section A**: Tool to split the selected panel vertically or horizontally into two panels. See A above.
- **Section B**: Merge/swap tool. Merge causes the child panels of the selected panel to be merged into one, and the swap tool swaps two child panels of the selected panel. See B above.
- **Section C**: Tool to specify manually and hence more precisely the ratio between the selected panels' children's sizes (either width or height, depending on the way they are split). The ratio is specified using relative values. E.g. the setting "1 and 1" yields two child panels with the same relative size (*Figure 51*) and the setting "1 and 2" yields one child panel twice the size of the other child panel (*Figure 52*). See C above.
- **Section D**: Tool to change the focus from the current selected panel to its parent or to the root panel element. This can be done by clicking on the desired panel directly in section F (*Figure 50*), but sometimes it is faster to do it by using the Parent/Root buttons. See D above.
- **Section E**: The field to enter the unique name of the layout. This name will serve as a reference during the configuration of screen groups. See E above.
- **Section F**: Interactive preview of the layout.
  Here the user can see how the Wallboard will be divided into sections.
  - The available sources can be mapped to the desired panels.

- The arbitrary size ratio between sibling panels can be set by dragging the slider between those panels.
- The active panel can be selected. The active panel is the target panel for split/merge/swap … operations.

Notice: New panels can be created by splitting existing panels only. A panel can be removed by merging two panels into one. Left resp. top panel will be preserved during merge, depending on parent panel orientation.

Figure 51: Size Ratio 1/1

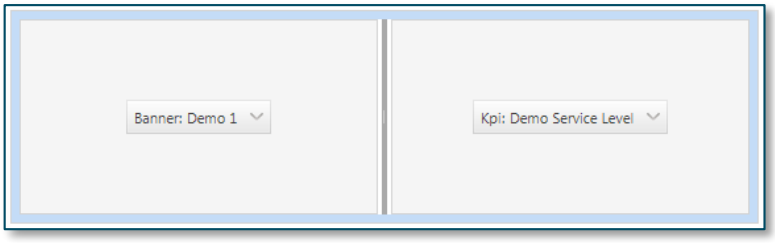
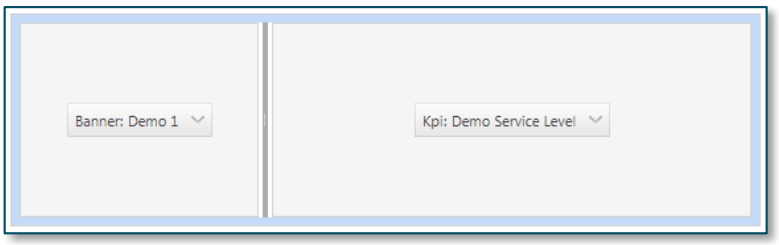


Figure 52: Size Ratio 1/2



After users are done configuring the layout, they have to press the Apply button below the Active Panel and then the Save button at the bottom of the screen. Without pressing the Apply button, the layout configuration will NOT be saved!

Security

Refer to section Access Privileges *4.12* and Security Mechanism *Chapter 5* for Screen security fundamentals.

Layout Templates

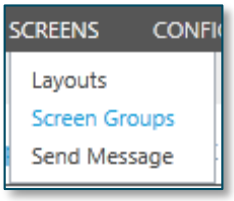
The 2Ring DW Configuration Tool comes with predefined layout templates. Only sources need to be added to these templates. To use a template follow the steps below:

- Click on a template to use.
- Click the copy icon, a new layout will be created.
- For the newly created copy, create a new name in the General tab.
- Click Edit layout button.
- Add a source to each panel.
- Click Apply.
- Click Save.

4.4.2. Screen Groups

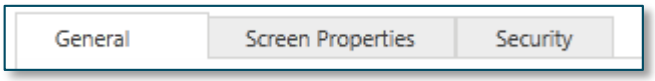
A Screen Group is a set of screens (for example, big flat TVs on the wall in the contact center or coffee room) which use the same configuration and the same content on their screens. Users can simply change the content on these screens by updating the layout sequence of this Screen Group.

Figure 53: Screen Groups



When users create a new Screen Group, 3 tabs are available (*Figure 54*).

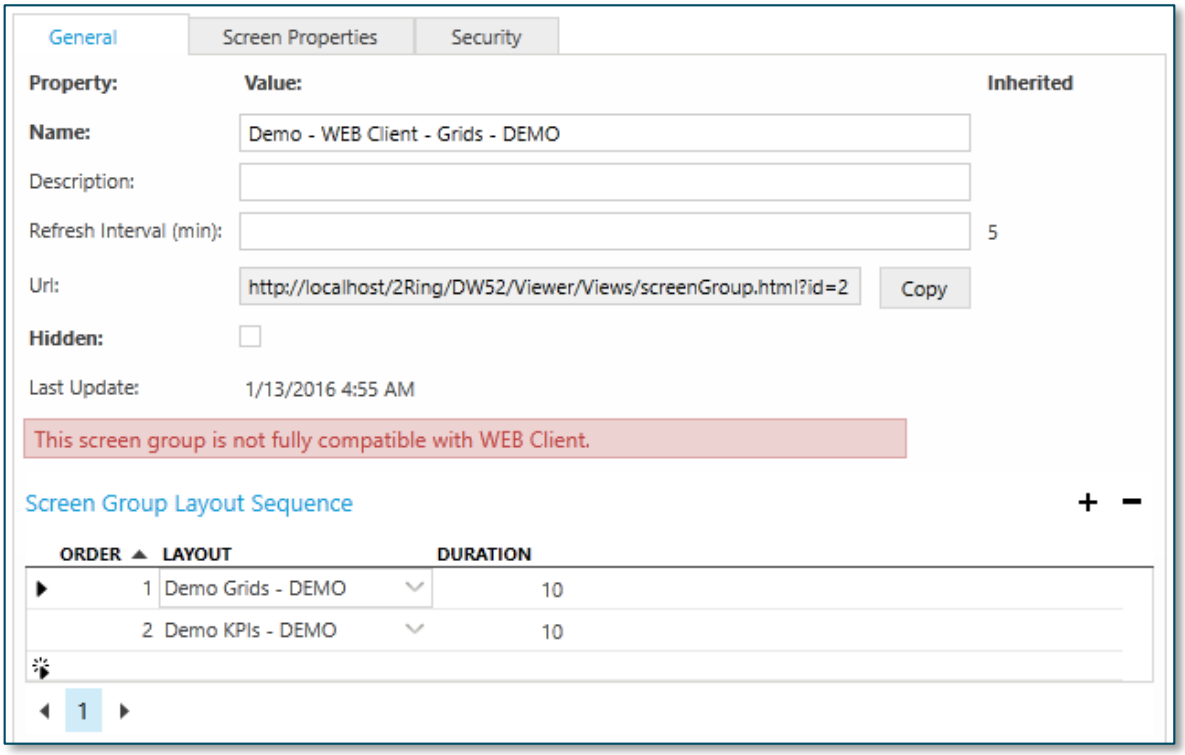
Figure 54: Screen Group tabs



- **General** - common information like Screen Group name, etc.
- **Screen Properties** - settings to configure the DESKTOP Client/WEB Client application's window.
- **Security** – Security settings for Screen Group.

General

Figure 55: Screen Group - General



In the General tab (*Figure 55*), users can set these properties:

Required:

- **Name** - required, used in configuration URI for DW clients.
- **Hidden** - If checked, Screen Group will not be visible in Screen Group list (WEB Client) and in Change Screen Group dialog (DESKTOP Client).
- **Screen Group Layout Sequence** - required, add one or more layouts that will be displayed in rotating order in the screen group. Each layout has a specific duration before the next layout is displayed. One layout will result in no rotation.
- The following properties need to be set for each layout in the sequence:
  - **Order** - the position of the layout in the screen group layout sequence. Enter an integer. Layouts are displayed from lower to higher values when rotating.
  - **Layout** - the layout to display.
  - **Duration** - the number of seconds the layout will be displayed.

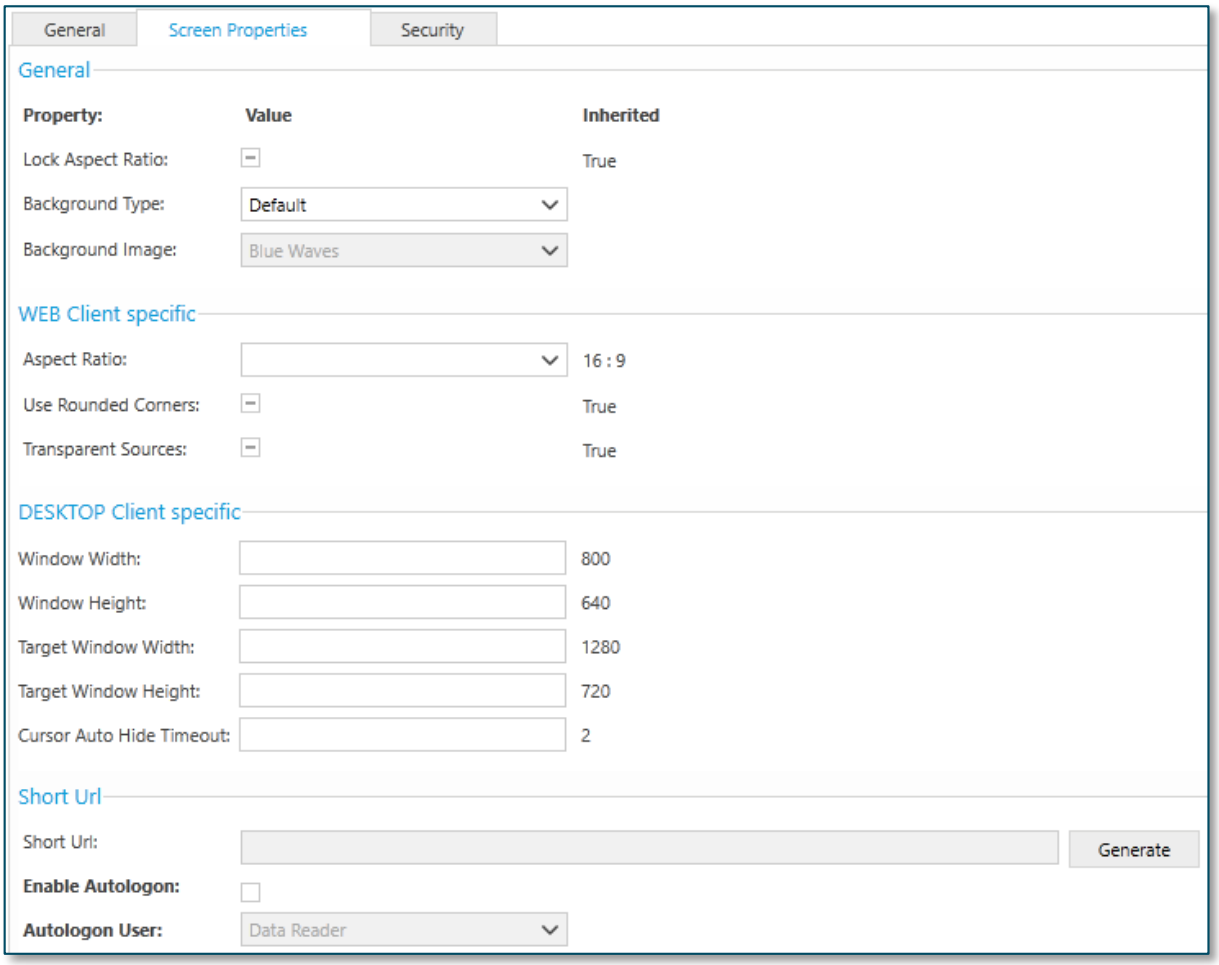
Optional:

- **Description** - optional, description of this screen group.
- **Refresh Interval** - optional, refresh interval will check for screen group changes every N minutes. Changes made to Screen Group or to Layouts that are associated with Screen Group will cause a reload. Empty/zero interval will use default refresh value. To change Screen Group name, a manual reload will be needed.
- **URL** – URL of Screen Group. Use this URL for bookmarking in a browser.
- **Last Update** - shows the last update date and time of this screen group.

Notice: For each Screen Group a notification is shown whether it can/cannot be displayed in WEB Client. Screen Groups that have multiple Layouts or Layouts with content sources not supported in WEB Client will result in a partially displayed Screen Group. See Chapter 7

Screen Properties

Figure 56: Screen Group - Screen Properties



In the Screen Properties tab (*Figure 56*), the targeted window size is configured. The following configuration values are available:

- **Lock Aspect Ratio** - When set to True, the aspect ratio between the width and height of the Wallboards screen will be fixed regardless of the browser/desktop application window size. This setting applies to DESKTOP Client and WEB Client.
- **Background Type** – Screen Groups
  - **Background Image** – Image used as a background to sources displayed in the Screen Group. To add images, see section *4.7.3*.
  - **Background Color** – Solid color used as a background to sources displayed in the Screen Group.
- **Aspect Ratio** - the proportional relationship between the width of a Screen Group and its height. This setting only applies to WEB Client.

- **Use Rounded Corners** – All sources contained in the Screen Group will appear with rounded corners when checked. Source options include: Rounded or Square.

  Notice: This feature is not supported in WEB Client using Internet Explorer 8, 10 and DESKTOP Client.

- **Transparent Sources** – All sources contained in the Screen Group will be transparent to the background set in the background type property.

  Notice: Not supported in DESKTOP Client.

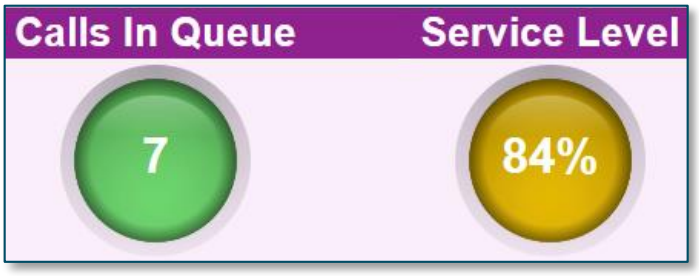
- **Window Width** - Initial width of the DESKTOP Client application's window.
- **Window Height** - Initial height of the DESKTOP Client application's window.
- **Target Window Width** - Reference width of the Wallboards screen used for computing the dimension of the inner panels when configuring the screen's layout. This setting only applies to DESKTOP Client.
- **Target Window Height** - Reference height of the Wallboards screen used for computing the dimension of the inner panels when configuring the screen's layout. This setting only applies to DESKTOP Client.
- **Cursor Auto Hide Timeout** - Period of keyboard/mouse inactivity in seconds after which the mouse cursor will hide. This setting only applies to DESKTOP Client.
- **Generate Short URL** – Button to generate a short URL for a Screen Group. See section *5.3* for the use of a short URL.
- **Enable Autologon** – Bypass login screen to Screen Group. No credentials will need to be entered for the Screen Group to load.
- **Autologon User** – User used to authenticate automatically when viewing Screen Group.

For example, here is a screen group "2RingDemo" with a layout sequence using 2 layouts "Demo1 and Demo2":

The Screen Group content will look like the following in DESKTOP Client:

Demo1 will be displayed first.

And after a duration of 10 seconds Demo2 layout will be displayed for 15 seconds:



Once 15 seconds is up Demo1 layout will be displayed again.

Security

Refer to section Access Privileges *4.12* and Security Mechanism *Chapter 5* for Screen security fundamentals.

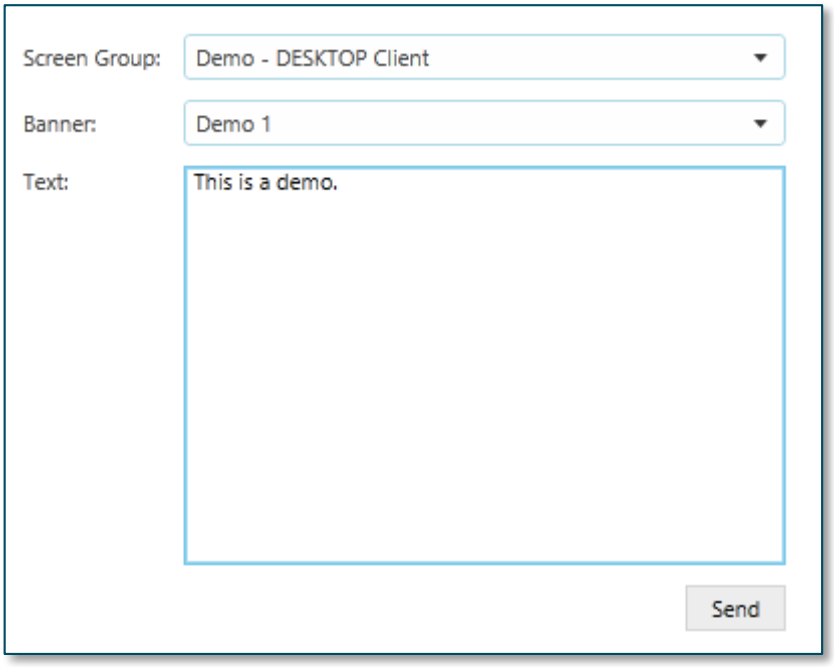
4.4.3. Send Message

The Send Message screen enables a user to quickly send a message to a particular Banner. To send a message, fill out the following fields:

- **Screen Group** - the name of the Screen Group that contains the Banner to be set.
- **Banner** - the name of the Banner to send a message.
- **Text** - the message to display on the Banner.

Once the fields are fill out click Send.

Figure 57: Send Message screen



4.5. Calculation

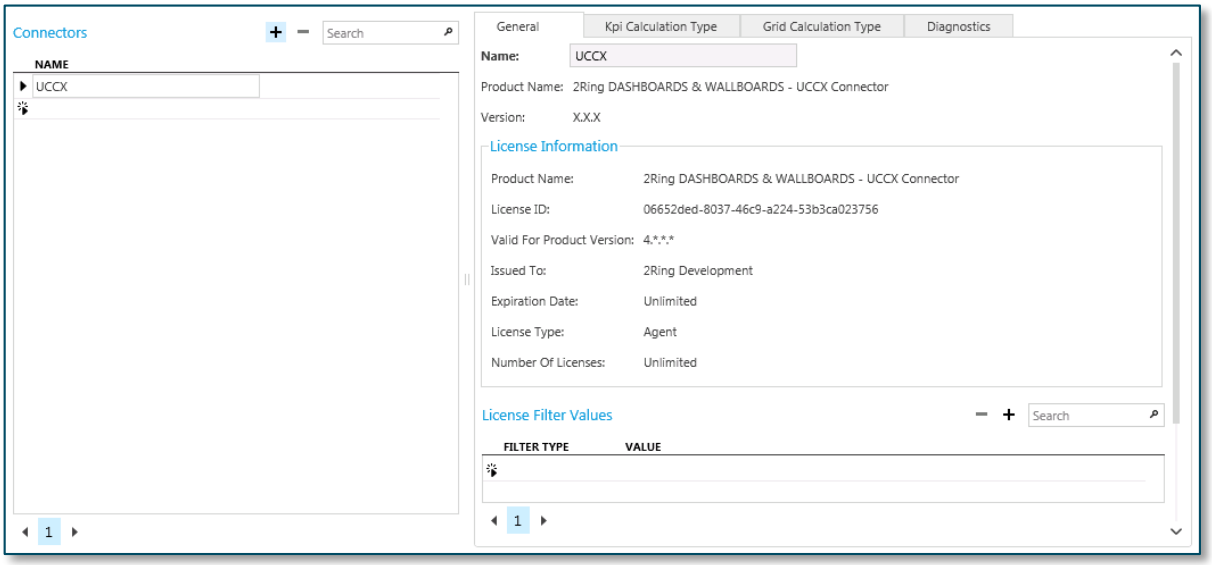
4.5.1. Connectors

2Ring DW has flexible architecture where changes can be made to existing Connectors or 3rd party external data Connectors can be added. For adding 3rd party Connectors, see DW Customization Guide to register a Connector using the Connectors form below.

The Connectors form (*Figure 58*) displays a list of existing Connectors and enables adding, editing or removing Connectors. Only custom Connectors can be removed from Connectors form. The Connectors form also provides license management and diagnostic information for a connector.

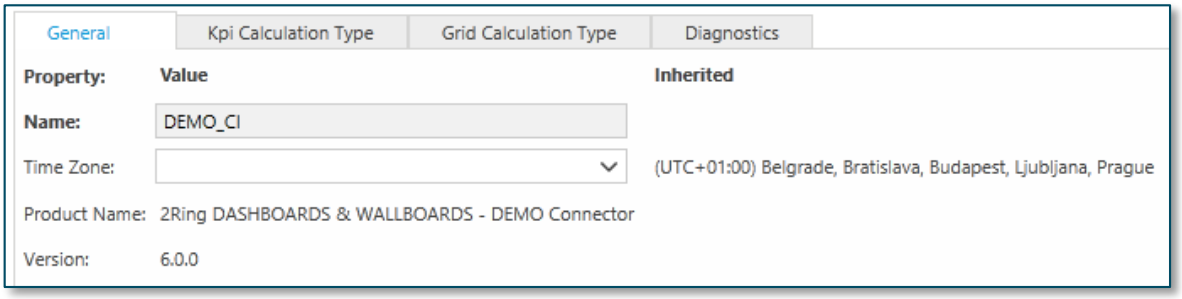
Notice: 2Ring Connectors register themselves and all corresponding entities when installed.

Figure 58: Connectors



General

Figure 59: General tab

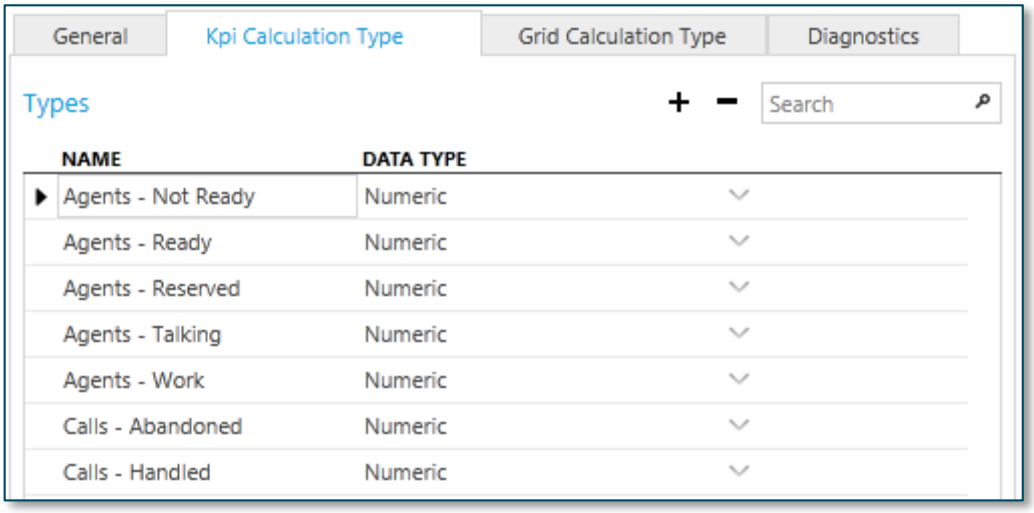


In the General tab (*Figure 59*), the following properties are available:

- **Name** - name of the Connector.
- **Time Zone** –This setting allows the end user to specify which time zone the KPI/Grid calculations should use. The time zone will be used as a default for all KPI/Grid calculations in the connector.
- **Product Name** - name of connector installed. Read only property. Not visible for custom connector.
- **Version** - version of Connector. Read only property. Not visible for custom connector.

KPI Calculation Type

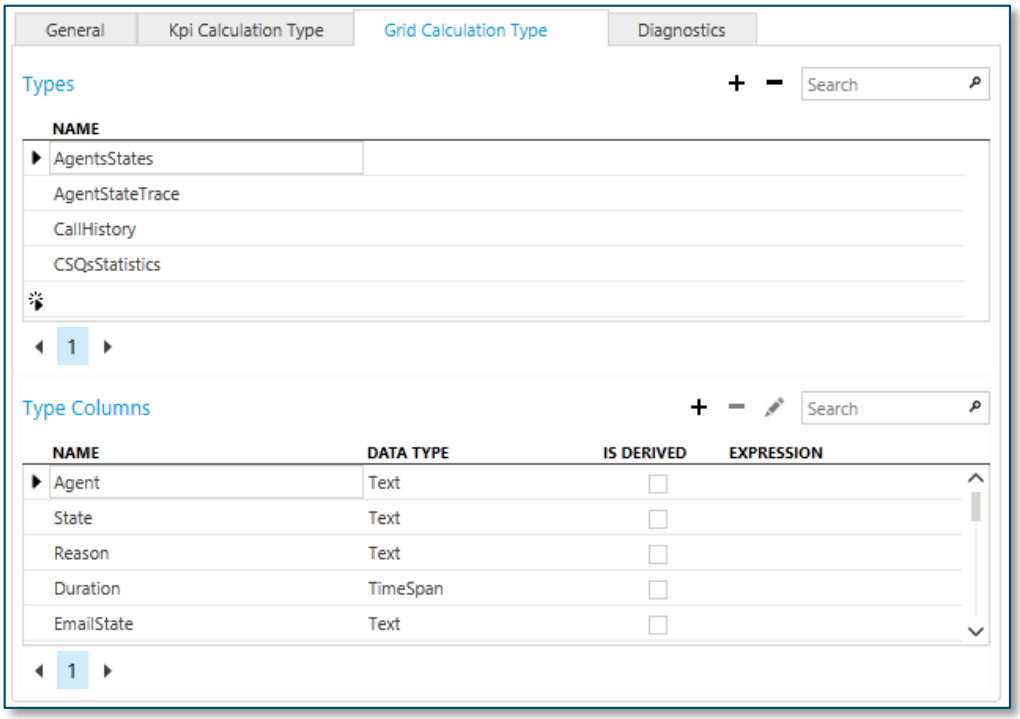
Figure 60: KPI Calculation Type tab



In the Kpi Calculation Type tab (*Figure 60*), users can add, edit or remove an existing KPI Calculation Type. To create a KPI Calculation Type, click + and fill in the Name and Data Type field. The Data Type field must match the value data type returned from the Connector that handles this KPI Calculation Type.

Grid Calculation Type

Figure 61: Grid Calculation Type



In the Grid Calculation Type tab (*Figure 61*), users can add, edit or remove an existing Grid Calculation Type. To create a Grid Calculation Type, click + in the Types table and fill in the Name.

Derived Grid Columns

Custom computed Grid columns can be added to Grid Calculation Types. Custom computed columns offer the flexibility to add columns that do not come with the connector when it is installed. The computed column is created using a T-SQL expression. Simple or advanced SQL logic can be used in the expression. This includes simple math operations, cast operations, etc. If a number with a decimal point is desired, the expressions have to be multiplied by 1.0.

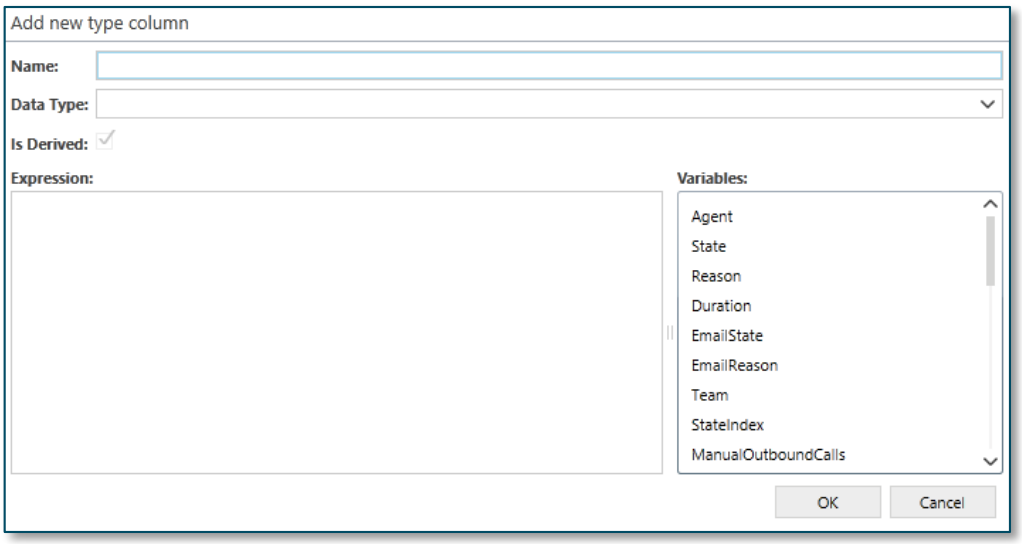
Notice: Custom functions dbo.MinNumeric(), dbo.MaxNumeric(), dbo.MinDateTime() and dbo.MaxDateTime() can be used to compare two values to return either the lesser or greater one.

Notice: Derived Grid calculations cannot be used in other derived Grid calculations.

ATTENTION! If the created expression is invalid, all Grids using that Grid Calculation Type will become invalid as well.

To add a computed column, click + in the Type Columns table. A new dialog column will appear (see *Figure 62*).

Figure 62: Creating computed Grid columns



To create a computed Grid column, fill in the following fields and click OK:

- **Name** – name of the new computed column.
- **Data Type** – the type of value that will be calculated. Possible options are: Date Time, Numeric, Text or Timespan.
- **Expression** – A T-SQL expression to compute the column. Other column values can be used in the expression by double clicking the column name in the Variables list box.
  - Example 1: Create message column that displays "Please end the call" when agent is talking over 15 minutes. The SQL expression would be:

```
CASE
   WHEN Duration > 900 AND State = 'Talking'
   THEN Please end the call.'
END
```

Notice: To remove a Connector from DW all KPI and Grid calculations for that connector must be deleted first.

License Management

The General tab displays license information, license filter settings, and license validation for a connector. To add or change a license for a connector, click Insert License button, paste license and click **Save** button.

Notice: Once the license is inserted and saved, it may take up to a minute for the license to take effect for the connector.

The following information below is displayed:

License Information

- **Product Name** – name of the product the license belongs to.
- **License ID** – ID to identify this license. To resolve license issues provide this ID to 2Ring for support.
- **Valid For Product Version** – DW product version the connector license is valid for.
- **Issued To** – the company the license is issued to.
- **Expiration Date** – date the license expires. Value unlimited never expires.
- **License Type** – type of license issued. A license for the number of agents will display: Agent.
- **Number of Licenses** – number of licenses that can be consumed by agents. Exceeding this number will cause the connector to stop calculating and will display an error message.

License Filter

- **Filter Type** – Filter which will count the number of licenses being consumed for specific Skill Group(s) and/or Precision Queue(s) or Contact Service Queue(s). If left empty all Skill Group(s), Precision Queue(s) or Contact Service Queue(s) will be counted.
  A connector may have more than one filter type. Ex: In UCCE, both Skill Groups and Precision Queues can be used at the same time, see *Figure 63*.

Figure 63: License Filter Values

License Filter Values

FILTER TYPE	VALUE
precisionQueues	CallGen_Super4G_Central, CallGen_Super4G_Support
skillGroups	SG1

ATTENTION! Each Filter type can be used only once. It means 1 row for 1 filter type.

By setting this filter, the following changes will occur in DW:

- DW will only display data for KPIs and Grids that contain Skill Group, Precision Queue or Contact Service Queue parameters in their KPI/Grid calculations with the exception of Last Import Date KPI.
- KPI/Grid data will only be calculated for specific Skill Group(s), Precision Queue(s) or Contact Service Queue(s) defined in Filter Value.

- **Filter Value** – a list of Skill Groups, Precision Queues or Contact Service Queues. Use a comma to add more than one Skill Group, Precision Queue or Contact Service Queue. Ex: Skill Groups: English,Credit Cards

License Validation

- **Licenses Consumed** – number of licenses currently being used.
- **Peak Licenses Consumed** – maximum number of licenses used during the last 14 days.
- **Peak Licenses Consumed Date** – the date on which the maximum number of licenses were used during the last 14 days.

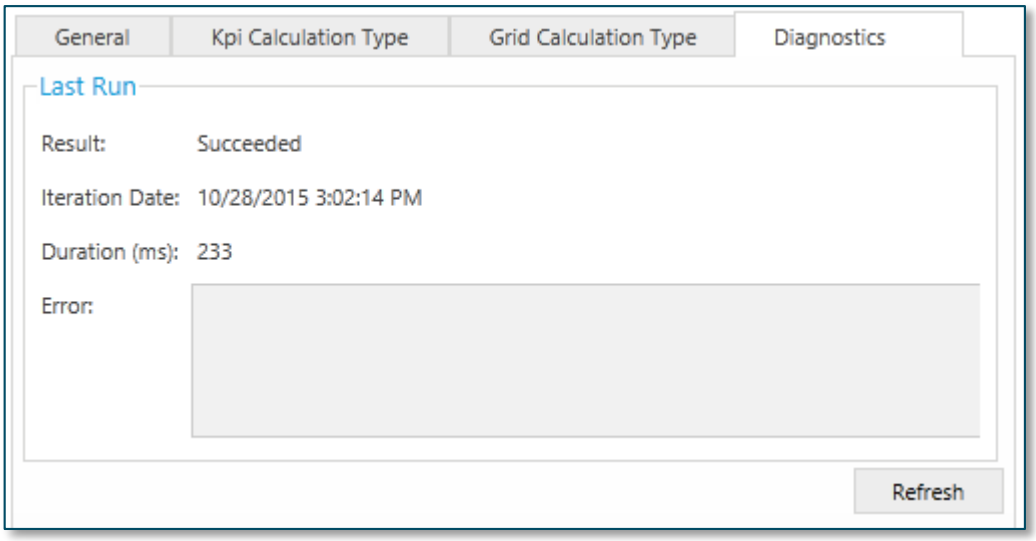
Diagnostics

2Ring DW monitors each connector installed and checks whether it is operating correctly.

2Ring DW displays the following diagnostic information for a connector in the Diagnostics tab (see *Figure 64*):

- **Results** - indicates whether connector was successful in collecting data from source, processing the data and sending it to DW database. Succeeded or Failed is displayed.
- **Date Time** - the last time data was processed by the connector.
- **Duration** - the number of milliseconds it took to process data.
- **Error** - an error message indicating why the connector is not working.
- **Refresh** – button to refresh diagnostic information.

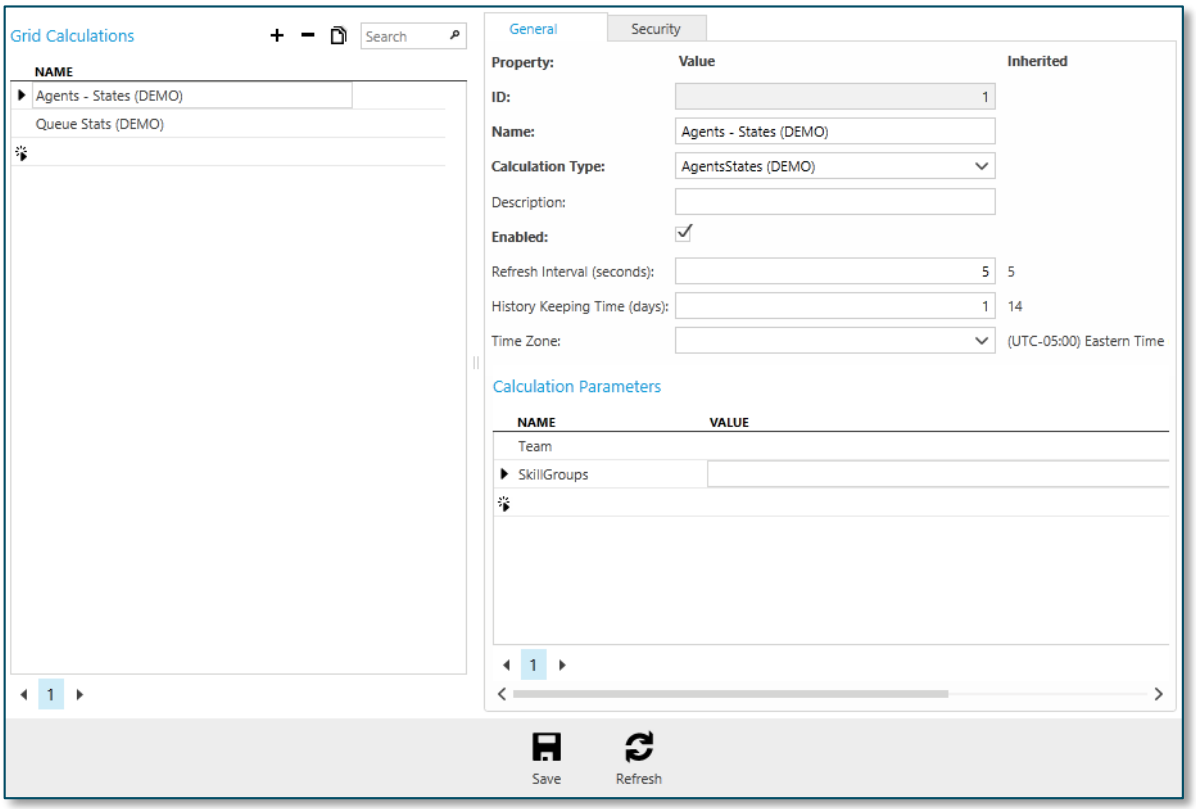
Figure 64: Connector Diagnostics



4.5.2. Grid Calculations

GRID Calculations form (*Figure 65*) displays a list of existing Calculations and enables adding, editing, removing or copying existing GRID Calculations.

Figure 65: Grid Calculations Form



General

In the General tab, users can set these properties:

- **Name** – unique GRID calculation name used in the GRID source (the GRID Calculation form field – see DASHBOARDS & WALLBOARDS User Guide).
- **Calculation Type** – connectors GRID calculation type in the form 'GRID Calculation type (Connector name)'. The calculation type is associated with particular SP in connector database. Execution of this procedure is scheduled and executed by Windows task. All GRID values according to the configured calculation SP and refresh interval are recalculated.
- **Description** – descriptive text to describe calculation performed.
- **Enabled** – indicates if the new GRID values is calculated depending on the interval defined in the Refresh Interval.
- **Refresh Interval** – value in seconds which defines interval of executing the SP's calculation and new GRID values stored in the Values Table is calculated.
- **History Keeping Time** – defines how long the values are retained in the database (days).
- **Time Zone** - time zone used to perform Grid calculation. For more information see section *4.8.2*.

- **Calculation Parameters** – additional parameters used in the Store Procedure associated with the connector's calculation type (Calculation Type field). Parameters are used to filter data. More than one value for a parameter is separated by a comma. Ex: Team1, Team2.

Notice: Preferred way of creating a new GRID Calculation is creating a copy of existing grid Calculation with same Calculation Type as target GRID Calculation. Reason is that you do not have to write names of Calculation Parameters in the table if you create a copy of existing GRID.

Security

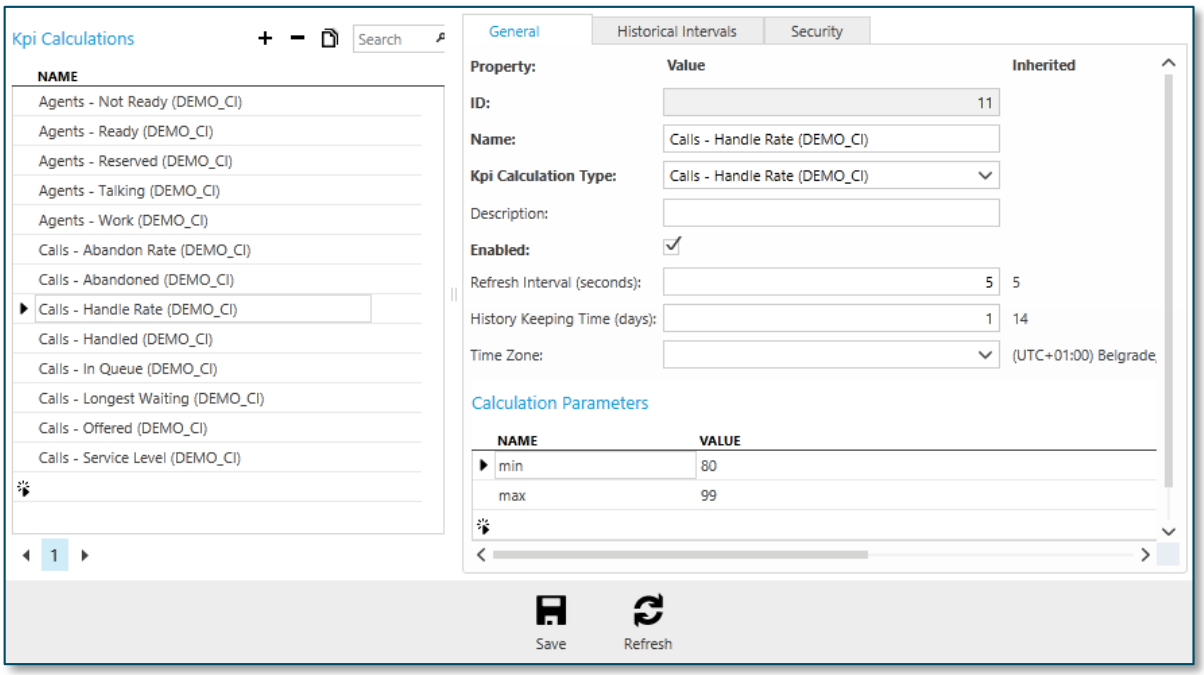
Refer to section Access Privileges *4.12* and Security Mechanism *Chapter 5* for Calculation security fundamentals.

4.5.3. KPI Calculations

The KPI Calculations form (*Figure 66*) offers the following features:

- Displays a list of existing calculations
- Add a new calculation
- Edit an existing calculation
- Remove an existing calculation
- Copy existing KPI calculation

Figure 66: KPI Calculations Form



General

In the General tab, users can set these properties:

- **Name** – unique KPI calculation name used in the KPI source (the KPI Calculation form field – see DASHBOARDS & WALLBOARDS User Guide).
- **Enabled** – indicates if the new KPI value is calculated depending on the interval defined in the Refresh Interval.
- **Refresh Interval** – value in seconds which defines interval of executing the SP's calculation and the new KPI value stored in the Values Table is calculated.
- **History Keeping Time** – defines how long the values are retained in the database (days).
- **Time Zone** - time zone used to perform KPI calculation. For more information see section *4.8.2*.
- **Calculation Type** – connectors KPI calculation type in the form "KPI Calculation type (Connector name)". The calculation type is associated with particular SP in connector database. Execution of this procedure is scheduled and executed by Windows task. All KPI values according to the configured calculation SP and refresh interval are recalculated.
- **Calculation Parameters** – additional parameters used in the Stored Procedure associated with the connector's calculation type (Calculation Type field). Parameters are used to filter data. More than one value for a parameter is separated by a comma. Ex: skillGroup1, skillGroup2.

Notice: Preferred way of creating a new KPI Calculation is creating a copy of existing KPI Calculation with same Calculation Type as target KPI Calculation. This saves time by not having to write names of Calculation Parameters in the table if you create a copy of existing KPI.

Historical Intervals

Detailed description of the Historical Intervals is described in more depth in section *4.5.5*.

Security

Refer to section Access Privileges *4.12* and Security Mechanism *Chapter 5* for Calculation security fundamentals.

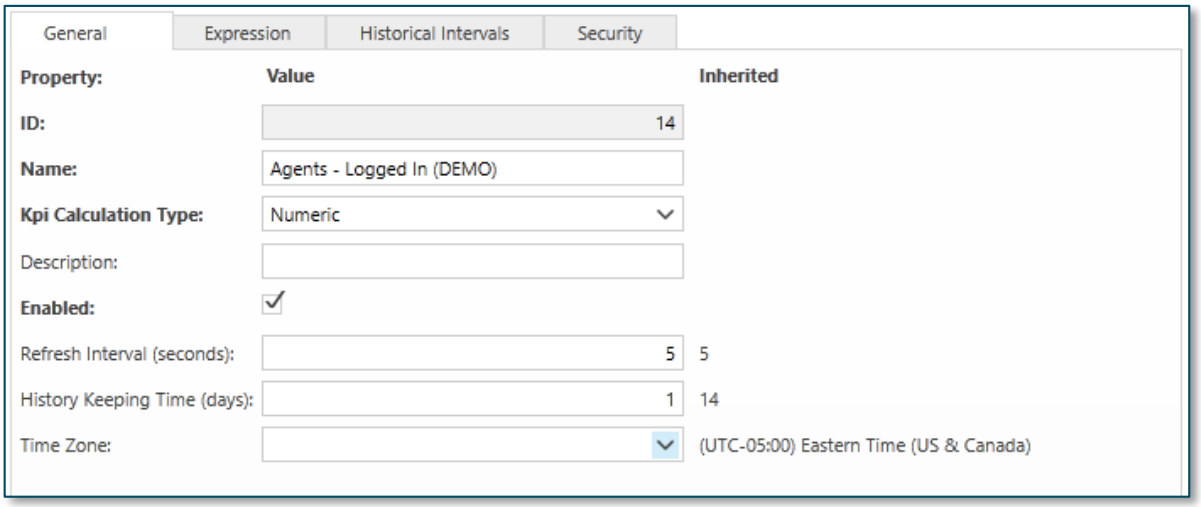
4.5.4. KPI Calculation – Derived

Derived KPI calculations offer the flexibility to add KPIs that do not come with the connector when it is installed.

The derived KPI Calculations form (*Figure 67*) offers the following features:

- Displays a list of existing derived calculations
- Add a new derived calculation
- Edit an existing derived calculation
- Remove an existing derived calculation
- Copy existing derived KPI calculation

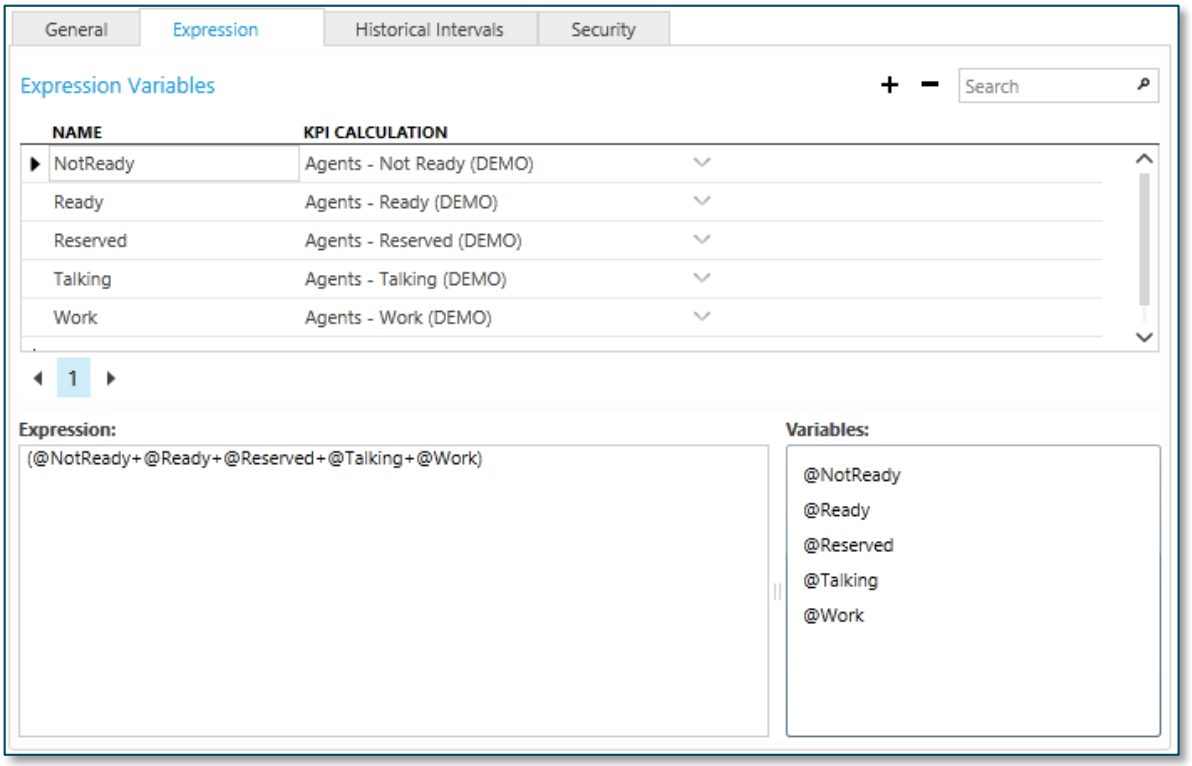
Figure 67: Derived KPI Calculations Form



For property explanations, see KPI Calculations section *4.5.3*.

When creating a derived KPI calculation, the proper KPI calculation type must be selected. The following KPI calculation types are available:

- Numeric – used for integer or percentage values.
- TimeSpan
- Text
- DateTime



Use Expression tab to create derived calculations. The derived calculation is created using a T-SQL expression. Simple or advanced SQL logic can be used in the expression. This includes simple math operations, cast operations, etc. If a number with a decimal point is desired, the expressions have to be multiplied by 1.0.

Notice: Custom functions dbo.MinNumeric(), dbo.MaxNumeric(), dbo.MinDateTime() and dbo.MaxDateTime() can be used to compare two values to return either the lesser or greater one.

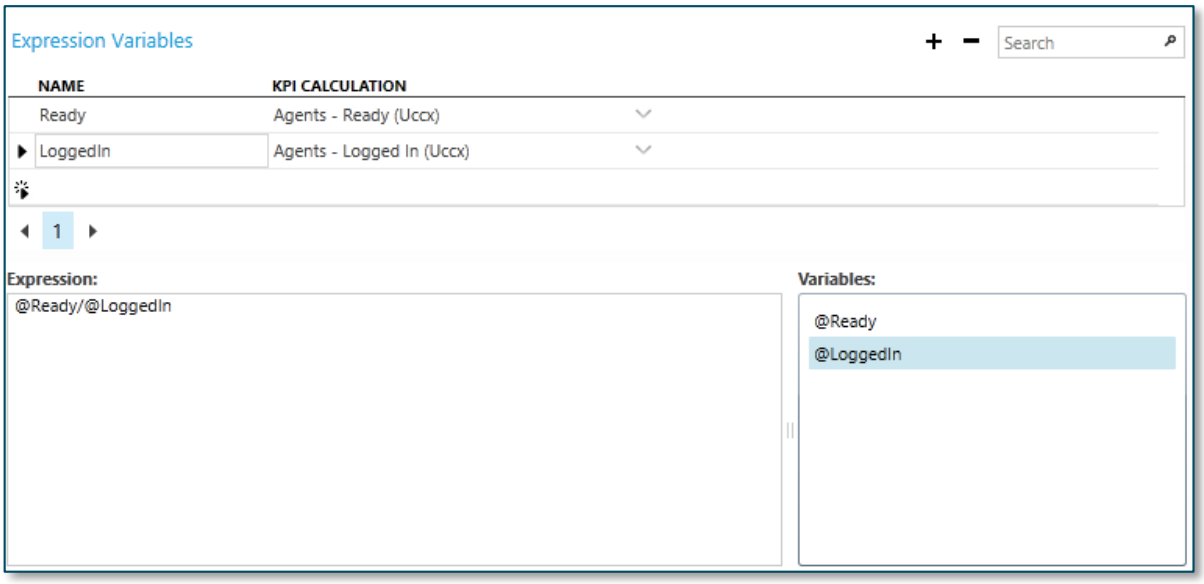
Notice: If an expression can result in being divided by zero, for example *Ready/NotReady* with *NotReady* being 0, the displayed value will be left blank. If a different result is desired, it can be achieved using the ISNULL() T-SQL function.

Click + in the Expression Variables section to use predefined calculations in the expression. In the KPI Calculation drop down list, choose the predefined calculation and give it a name. A variable in the Variables list box will be created. This variable can be used in the expression syntax.

Notice: Derived KPI calculations cannot be used in other derived KPI calculations.

Example 1: Create a KPI that displays the percentage of agents ready. See *Figure 68* for implementation.

Figure 68: Computed Column Expression



Historical Intervals

See section *4.5.5* for more information.

Security

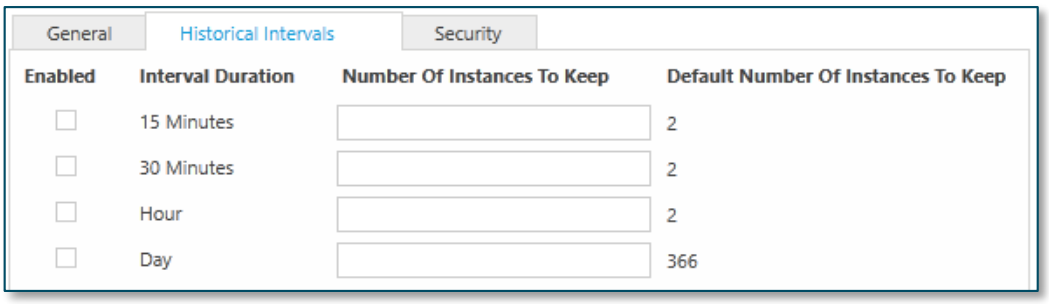
Refer to section Access Privileges *4.12* and Security Mechanism *Chapter 5* for Calculation security fundamentals.

4.5.5. KPI Historical Intervals

KPI calculations or Derived KPI calculations can track KPI interval data. KPI Interval data are displayed using KPI Interval Source (see section *4.3.3*). The available interval data durations are:

- 15 minutes
- 30 minutes
- Hour
- Day

The interval duration must be enabled for the KPI calculation to store interval data. Use the *Number of Instances To Keep* field to indicate how many interval calculations should be stored. For example: Setting 3 to *Number of Instances To Keep* field for 15 minute interval duration, the KPI calculation will store the last three 15 minute intervals each time the calculation is performed.



4.6. Notification

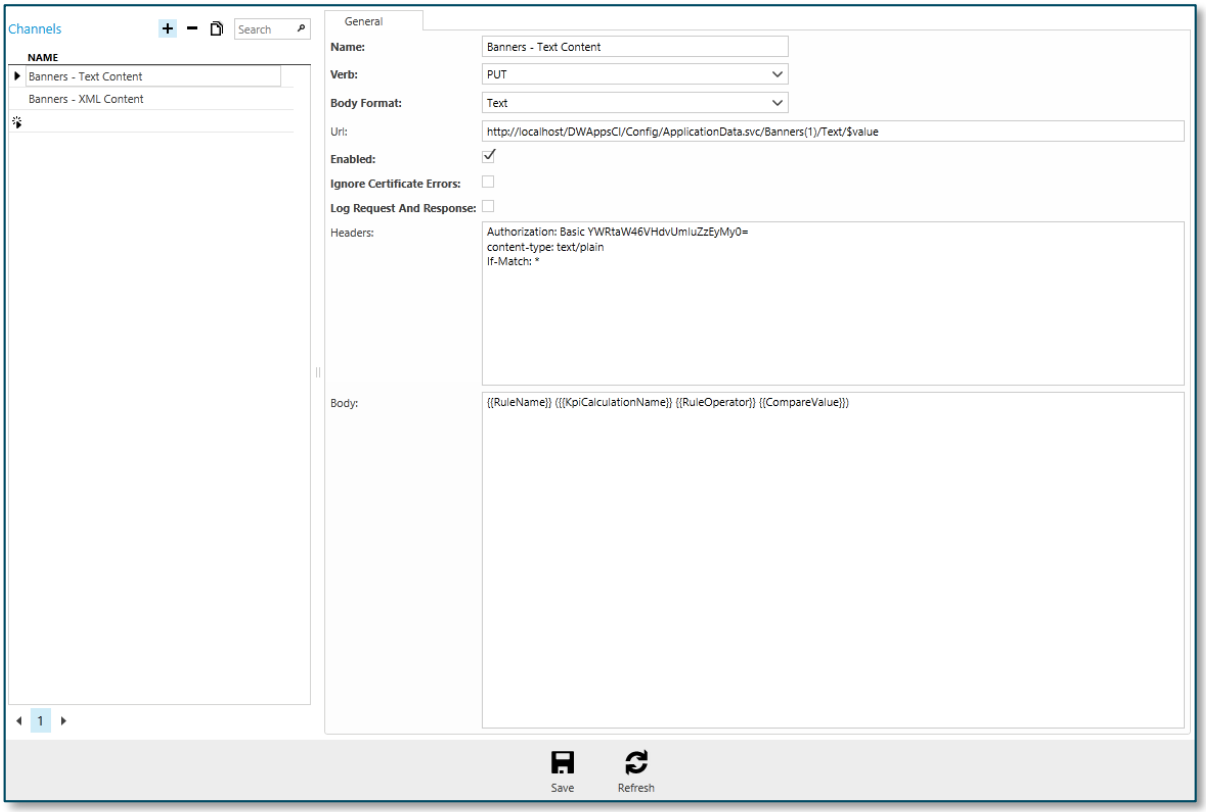
4.6.1. Channels

2Ring DW is able to communicate with 3rd party web services by creating a channel. The Channel is able to send or receive data when certain notification rules are met (see section *4.6.2*). The Channel supports web service actions such as: POST, PUT or GET. Data can be transmitted in XML, text or JSON.

Channel usage example:

- Update a DW Banner message when a notification rule has been met. 2Ring DW Config web service is used.

Figure 69: Channel Screen



To create a new channel, set the following properties:

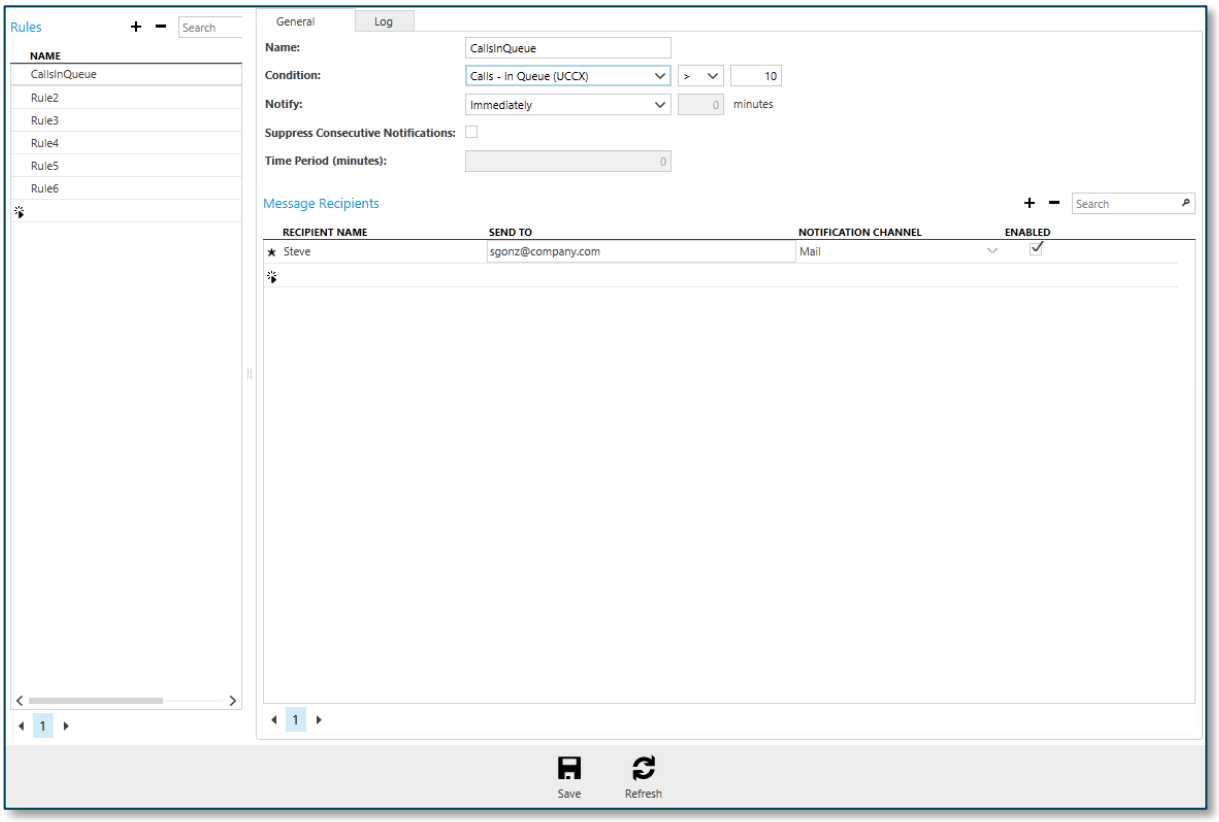
- **Name** – name of the channel used in notification rules page.
- **Verb** – action of the request. Possible values are: Post, Get, and Put.
- **Body Format** – the format of the data being sent. Possible values are: JSON, text, and XML.
- **URL** – web service URL.
- **Enabled** – turn Channel on or off.
- **Ignore Certificate Errors** – Calling a web service hosted on https may cause errors if the certificate is not trusted on the server where DW is hosted. To ignore these errors, turn on ignore certificate errors.
- **Headers** – http headers of the web service request.

- **Body** – data encapsulated in web service request. DW placeholders can be put into the body of message. These placeholders contain notification rule information.
  The following placeholders can be used:
  - **{{RuleName}}** – Name of the notification rule.
  - **{{RuleOperator}}** – Comparison operation used in notification rule. Ex: <=, <
  - **{{CompareValue}}** – Notification rule compare value. The value the KPI is compared to.
  - **{{SequenceStart}}** - time the condition became true.
  - **{{SequenceDuration}}** - the number of minutes, the condition has been true.
  - **{{KpiName}}** – Name of the KPI being tracked.
  - **{{LastValue}}** – Last KPI value before the email is sent. Once a notification rule is met, the KPI value can change before the email is sent.
  - **{{RecipientAddress}}** – Recipient email address of the notification.
  - **{{RecipientName}}** – Recipient's name of notification email.
  - **{{CurrentUtcTime}}** – Time the email was sent. UTC time is used.

4.6.2. Rules

Notification rules enable call center supervisors/agents to receive alerts on KPIs when certain conditions are met. When a KPI reaches a certain value, the supervisor/agents can be informed. Before a notification rule can be created, a Channel needs to be setup. The most common type of Channel is the Mail Channel. The Mail Channel is able to send email notifications to list of recipients (see Channel section *4.6.1*). A mail server is required for the Mail Channel.

Figure 70: Notification Rules



Use the General tab to setup a new notification rule.

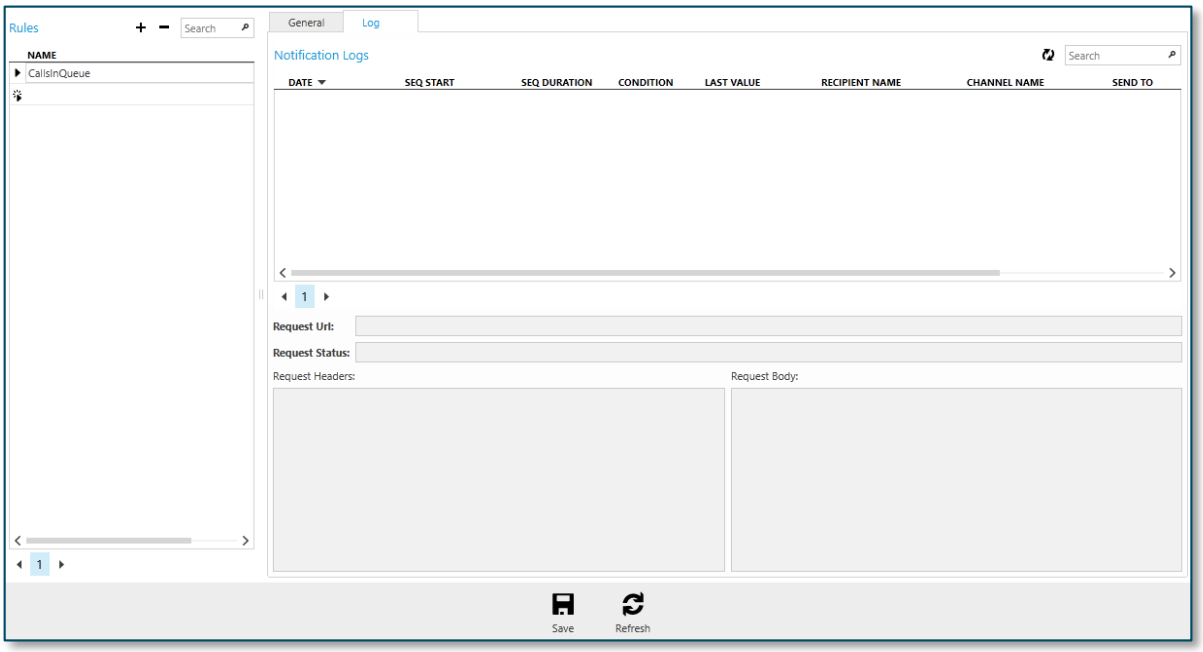
In the General tab (*Figure 70*), users can set these properties:

- **Name** – name of notification rule.
- **Condition** – condition which triggers notification. Constant value is placed after the operator. Operators available are:
  - **>** - greater than
  - **<** - less than
  - **>=** - greater than or equal to
  - **<=** - less than or equal to
  - **<>** - not equal to
  - **=** - equal to

- **Notify** – notification interval
  - **Immediately -** notification conditions are checked when the evaluation period is met (see *4.6.3*). If condition is true, notification is sent.
  - **If Condition Prevails For -** notification conditions are checked when the evaluation period is met (see *4.6.3*). When a condition is met, X amount of minutes is waited to see if the condition is still met. If it is met, a notification will be sent out.
- **Duration** – Only used when mode is time period.
- **Log Request Body and Headers** – log header/body information for http request. This is visible in Log tab.
- **Suppress Consecutive Notifications** – do not send notifications for a rule X minutes after a notification on this rule is sent out.
- **Time Period (minutes)** – number of minutes no notifications are sent out after a notification completed.
- **Message Recipients**
  - **Recipient Name** – email receiver's name.
  - **Send To** – email address where notification will be sent.
  - **Notification Channel** – channel used to send notification (see Channels section *4.6.1*).
  - **Enabled** – should recipient receive message.

To track each notification that is sent from a Channel, use the Log tab. Each notification contains detailed information.

Figure 71: Notification Logs



The following information can be read for each notification that is sent:

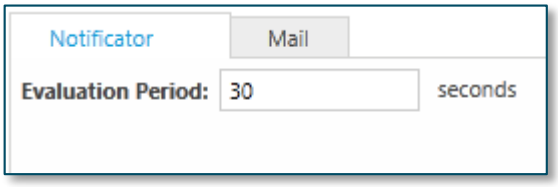
- **Date** – the date on which notification was sent.
- **Seq Start** – time the condition became true.
- **Seq Duration** – the number of minutes, the condition has been true.
- **Condition** – condition that was met for the notification to get triggered.
- **Last Value** - Last KPI value before the email is sent. Once a notification rule is met, the KPI value can change before the email is sent.
- **Recipient Name** - email receiver's name.
- **Channel Name** - channel used to send notification (see Channels section *4.6.1*).
- **Send To** - email address where notification was sent.
- **Request URL** – the web service where the request was sent.
- **Request Status** – the request status returned from the web service.
- **Request Headers** – headers that were sent in the http request to the web service.
- **Request Body** – message contained in the http request to the web service.

4.6.3. Settings

The system settings page is used for the following operations:

- Set Notificator properties.
- Configure a connection to the mail server. Once the mail server is setup, a channel and notification rules can be setup to receive email alerts for KPIs.

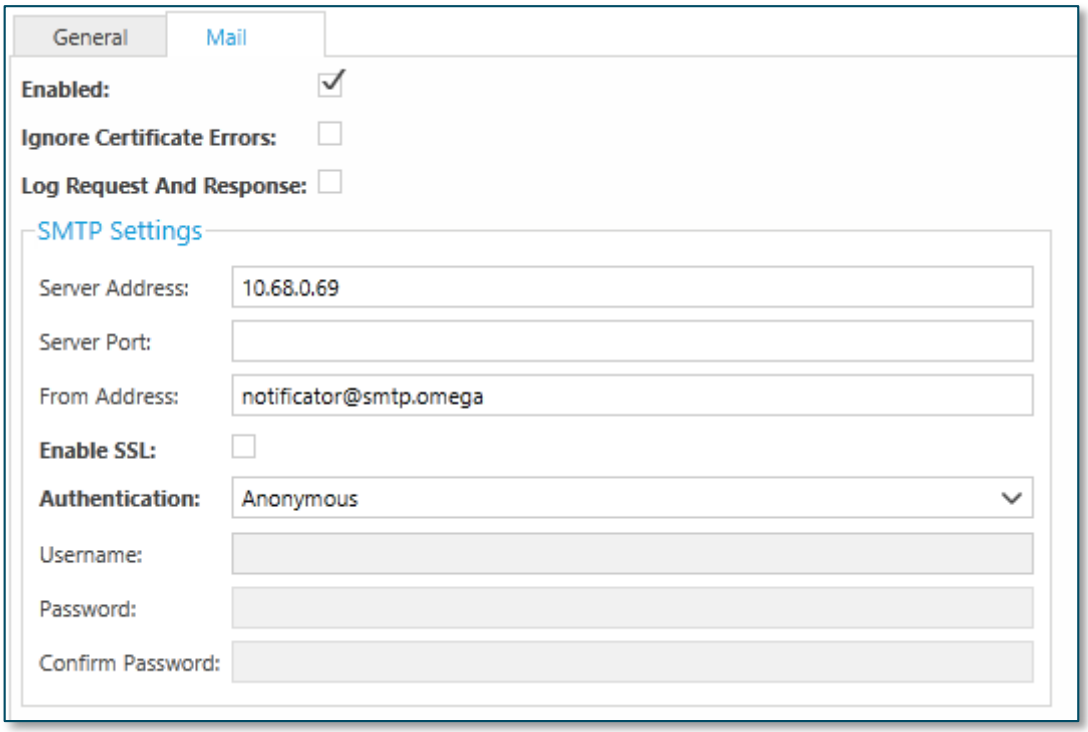
Figure 72: Notificator Settings



In the Notificator tab (*Figure 72*), users can set these properties:

- Evaluation Period – interval to evaluate all notification rule conditions (every X seconds).

Figure 73: Mail Server



Use the Mail tab to setup a connection to the mail server.

In the Mail tab (*Figure 73*), users can set these properties:

- **Enabled** – enable mail notifications.
- **Ignore Certificate Errors** – Sending email through a secure channel may cause errors if the certificate is not trusted on the server where DW is hosted. To ignore these errors, turn on ignore certificate errors.
- **Log Request And Response** - log header/body information for http request and response.

- **Server Address** – address of the mail server.
- **Server Port** – port of mail server. By default, port 25 is used.
- **From Address** – sender email address for the recipients of the email.
- **Enable SSL** – use secure communication channel for communicating with mail server.
- **Authentication** – authentication type used to connect to mail server.
  - **Anonymous** – no authentication is required to mail server.
  - **Integrated** – IIS application pool user is used to authenticate. DW runs in an application pool. The user assigned to this pool will be used.
  - **User And Password** – authenticate using a mail server account.
- **Username** – user used to authenticate against mail server. Only use if authentication type is: Username and Password.
- **Password** – password for user if authentication type: Username and Password is used.
- **Confirm Password** – password confirmation user if authentication type: Username and Password is used.

Notice: Notificator service must be running in order to send emails.

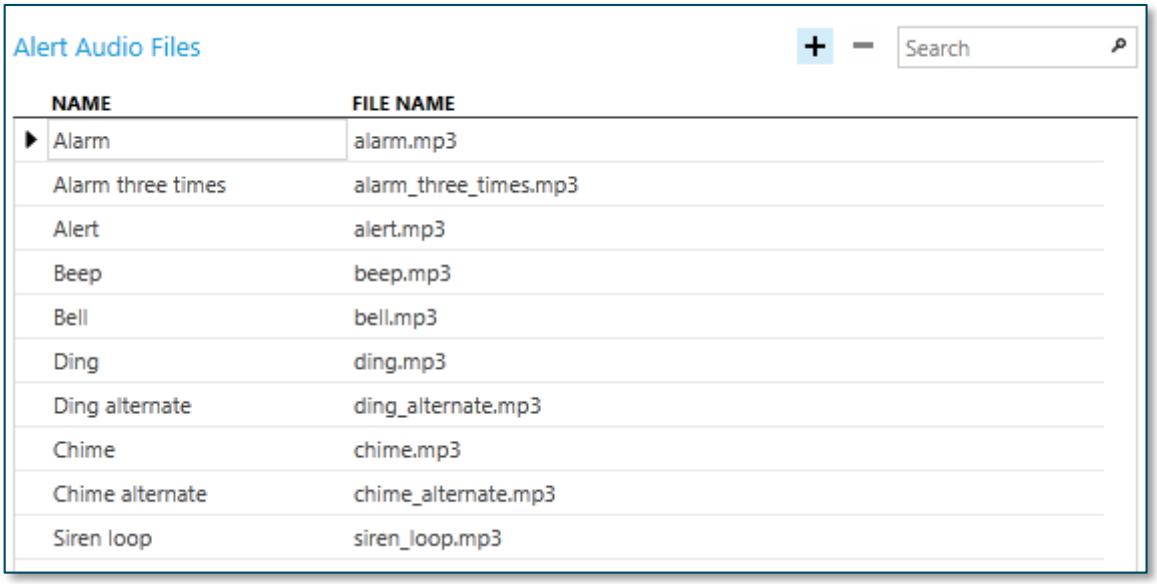
4.7. Enumerations

The enumerations menu item is only available to users with administrative privileges, see Security section *4.9*. System default values for Aspect Ratios, Alert Audio Files, Fonts, Display Formats, Presentation Types and Scroll Speeds cannot be deleted, but they can still be edited if needed.

4.7.1. Alert Audio Files

An alert audio file provides an audible sound warning when a bad value threshold is reached. To add or edit an alert audio file, use the standard buttons at the top of the list. All audio files are stored in the following directory: *DWInstallationFolder\Viewer\Content\Audio* in mp3 format. If an audio file is edited/added make sure the corresponding changes are made in the audio folder as well.

Figure 74: Alert Audio Files



4.7.2. Aspect Ratios

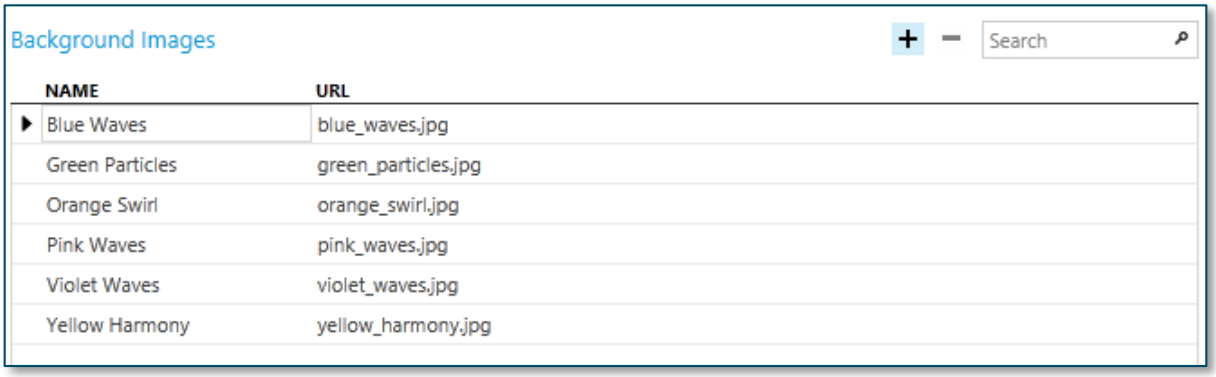
Aspect ratios are used in several entities of DW and can be set as properties. To add or edit an aspect ratio, use the standard buttons at the top of the list.

Figure 75: Aspect Ratios

4.7.3. Background Images

Background images are used as backdrops to sources in Screen Groups. To add or edit a background image, use the standard buttons at the top of the list. All background images are stored in the following directory: *DWInstallationFolder\Viewer\CustomImages\Backgrounds*. If an entry is edited/added, make sure the corresponding changes are made in the Backgrounds folder as well.

Figure 76: Background Images



4.7.4. Display Formats

This form displays a list of the formats used to display a value in the KPIs. To add or edit a format, use the standard buttons at the top of the list. 2Ring DW uses standard .net formatting strings that are described at the following link: http://msdn.microsoft.com/en-us/library/26etazsy.aspx (see the Related Topics – Numeric, Date and Time, Timespan … format strings).

Figure 77: Display Formats list

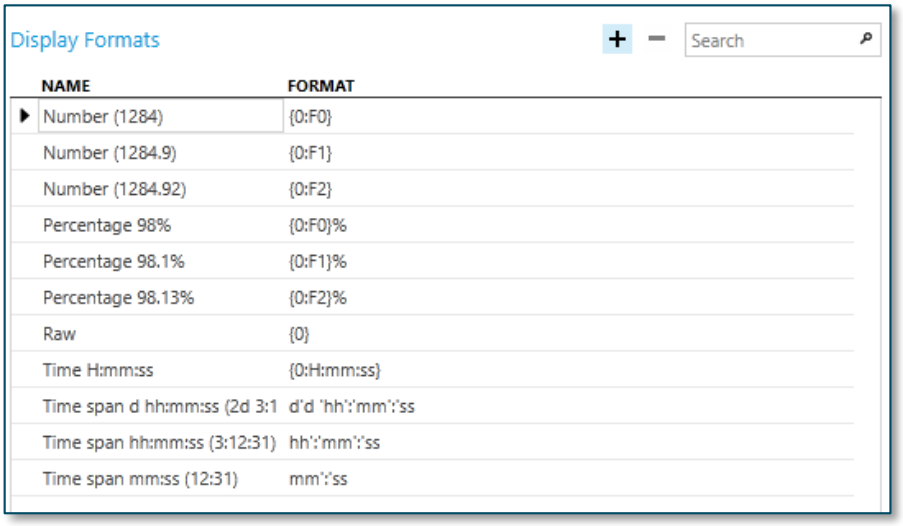


Figure 78: KPI with Percentage 98.1% display format

Figure 79: KPI with Percentage 98% display format

4.7.5. Fonts

This form displays a list of the standard font family names used for text in banners, the clock and KPI title and values, Grids. To add or edit the existing font, use the standard buttons at the top of the list.

In order to display the best font for each platform, you can create font fallback chains. To do that simply create a font that consists of a list of font names separated by comas. The clients will then use the first font in the font chain that is available on its platform.

Figure 80: List of Fonts

4.7.6. Presentation Types

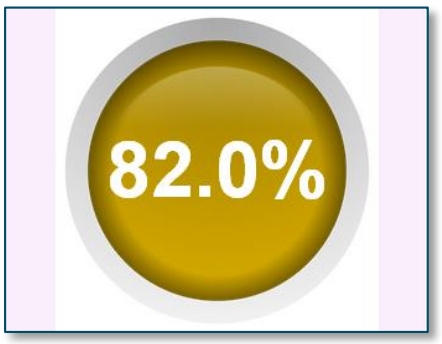
DW comes with a set of preconfigured presentation types for displaying numerical data in graphical form (KPI sources). There are 5 principal presentation types that come out of the box.

- **Semaphore** – A type for displaying state driven KPIs such as a traffic light system. Used when the state is more important than the value itself.

Figure 81: Semaphore

- **SemaphoreIE8** – This type is used for Internet Explorer 8 and other legacy browsers that do not support SVG. The white square background around the semaphore is not changeable. To get best visual results use a white background on the KPI itself. Visually this type is the same as Semaphore type.

Figure 82: SemaphoreIE8

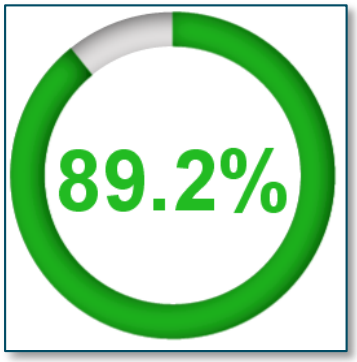


- **Alphanumeric** – Simple pure text type displaying just the value, delivering best number readability.

Figure 83: Alphanumeric

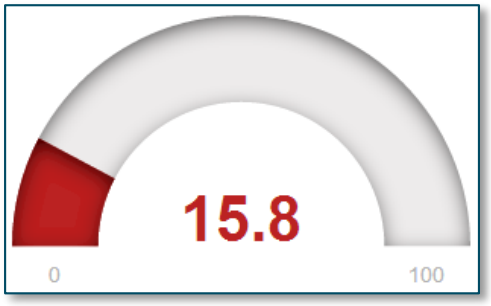
〉 **Circle** – This type is a circular indicator. It is most suitable for KPIs that have a known range of values (min, max). The indicator then displays the level of goal achievement. Absolute minimum by default is 0 and absolute maximum by default is 100 if not set. Absolute minimum must always be zero. Display format property is not supported (see section *4.7.4*). Not suitable for Internet Explorer 8.

Figure 84: Circle



〉 **Semi Circle** – This type is a half circle indicator. It is most suitable for KPIs that have a known range of values (min, max). The indicator then displays the level of goal achievement. Absolute minimum by default is 0 and absolute maximum by default is 100 if not set. Display format property is not supported (see section *4.7.4*). Not suitable for Internet Explorer 8.

Figure 85: Semi Circle



Each presentation type has the following properties as shown in *Figure 86*.

Figure 86: Presentation Type Configuration

- **Name** – Unique name for presentation type. (Presentation Type property in General tab of KPI source displays all presentation types).
- **Template** – Folder name of template located under DWInstallationFolder/Viewer/Templates.

Notice: To customize an existing presentation type or add a completely new presentation type, please contact 2Ring directly via any of the contacts listed on our website at www.2Ring.com/contact.

4.7.7. Scroll Speeds

Scroll Speeds are used in Banners. A Scroll Speed defines the rate at which the text in a Banner moves from one side to another. The higher the scroll speed value the slower the text moves from side to side. DW has predefined Scroll Speeds. The Title property will be displayed to users when choosing a speed.

Figure 87: Scroll Speeds

4.7.8. Ticker Item Heights

Ticker Item Heights are used in Tickers. Coefficients are used to scale the height of the KPI in the Ticker. A smaller coefficient value will create a taller KPI and vice versa. Ticker direction must be Top to Bottom or Bottom to Top.

Figure 88: Ticker Item Heights

4.7.9. Ticker Item Widths

Ticker Item Widths are used in Tickers. Coefficients are used to scale the width of the KPI in the Ticker. A larger coefficient value will create a wider KPI and vice versa. Ticker direction must be Left to Right or Right to Left.

Figure 89: Ticker Item Widths

4.8. System

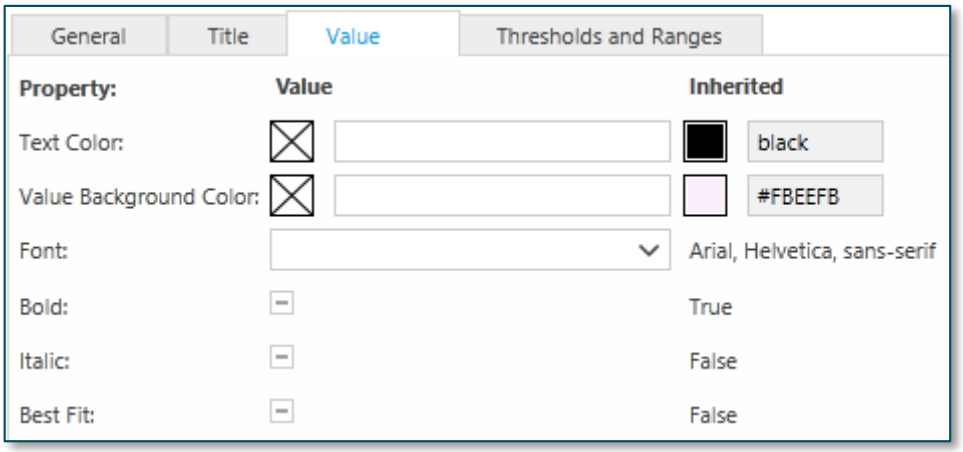
4.8.1. Default Values

2Ring DW has a comprehensive default value system. Almost all settings can be backed by a default value. This simplifies system configuration since you usually need to setup default values once and override them when necessary.

The default values are usually displayed to the right of the control for the value they back under the Inherited column.

Example of default value for Font property in KPI Title Style tab.

Figure 90: Default Values

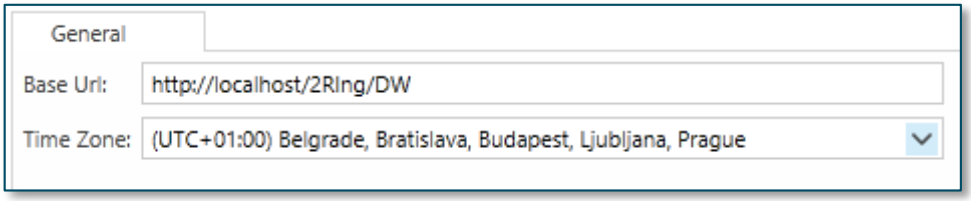


4.8.2. Settings

The settings page contains settings that are used throughout DW. The following settings can be set:

- Base Url – This is base URL for DW application. This URL must be used in DESKTOP Client to access DW or it's used to access WEB Client.
- Time Zone – This setting allows the end user to specify which time zone the KPI/Grid calculations should use. The time zone will be used as a default for all KPI/Grid calculations for all the connectors unless overridden on connector screen or on individual calculation screen.

Figure 91: Settings



4.9. Security

Viewing and managing 2Ring Dashboards & Wallboards requires setting up user roles, user accounts and groups of users. To manage accounts, use the Security menu in the CONFIGURATION Tool. The Security menu consists of the following sections:

- **Roles** – users that are created in DW must have a role(s) assigned. Each role defines the allowed permissions, allowing the user to access different sections of the application, see form (*4.9.1*):
- **Users** – gaining access to Clients and/or to Configuration Tool requires creating and managing users, see form (*4.9.2*).
- **Groups** – users can be grouped to assign visibility to *Sources* (KPIs, Grids, Tickers, Banners, External, Sequences), Layouts, Screen Groups, *Calculations* (Connectors and KPI/Grid calculations). A common scenario is to create user groups for different Screen Groups. Each team of users only sees relevant Layouts, see form (*4.9.3*).

4.9.1. Roles

The Roles form (*Figure 92*) manages roles for users. Each role that is created, requires adding permission(s).

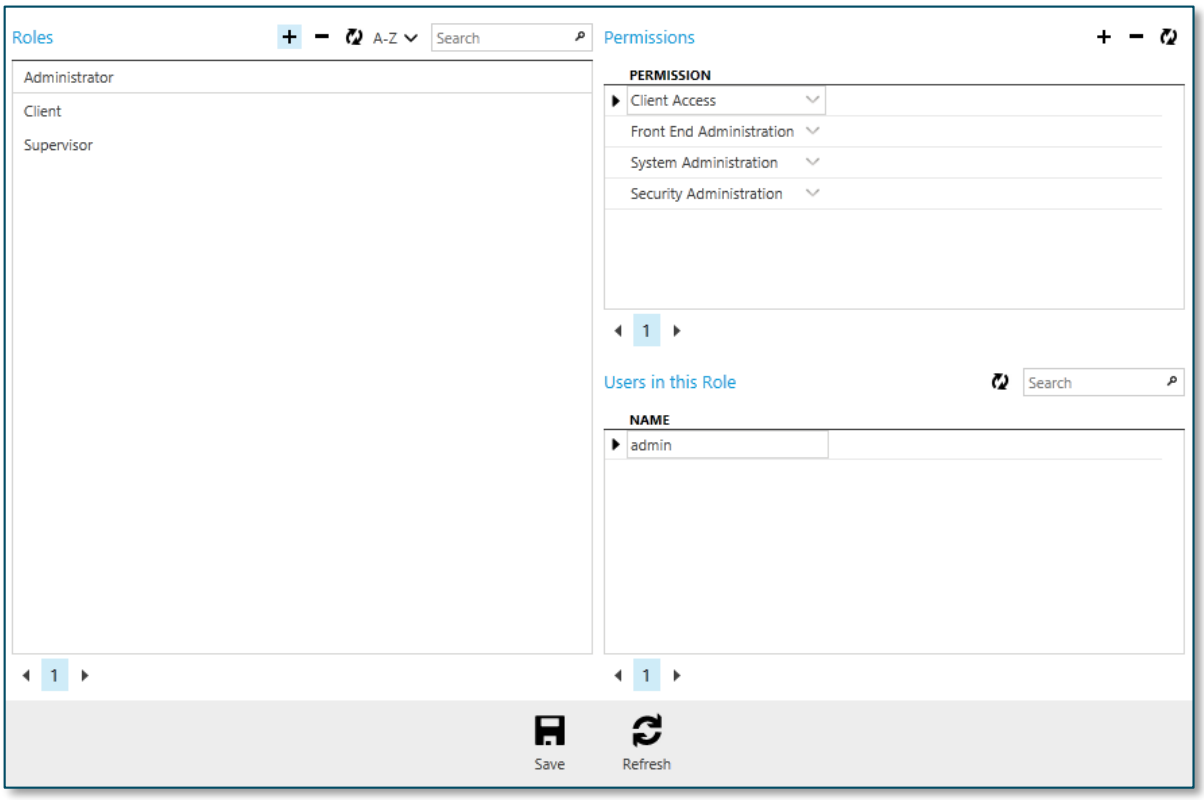
The following permissions can be used for creating roles.

- **Client Access** – can read *Sources* (KPIs, Grids, Tickers, Banners, External, Sequences), but not configure them. Without this permission, the user cannot access any sources, even if the user has Administration permissions.
- **Front End Administration** – can access and configure *Screens* (Layouts, Screen Groups and send messages to Banners) and *Sources* (KPIs, Grids, Tickers, Banners, External, Sequences). Also has access to Notification Rules in the *Notifications* menu.
- **System Administration** – can access and configure *Calculations* (Connectors and KPI/Grid calculations), *Notification* settings and channels, *Enumerations* (Display Formats, Fonts, Presentation Types, etc.), *System* settings and *Default Values*.
- **Security Administration** – can manage users, roles and user groups under the *Security* menu.

Typical roles of users are:

- **Administrators** – full control of application. To have full control, all the permissions must be assigned. However, administrative tasks can be divided by assigning only certain permissions (Front End Administration, System Administration, Security Administration)
- **Supervisors** – Configure *Screens* (Layouts, Screen Groups and send messages to Banners) and *Sources* (KPIs, Grids, Tickers, Banners, External, Sequences). Access to WEB/DESKTOP client. The permissions assigned are: Client Access and Front End Administration.
- **Client** – use WEB/DESKTOP client to view wallboards. The permission assigned is Client Access.

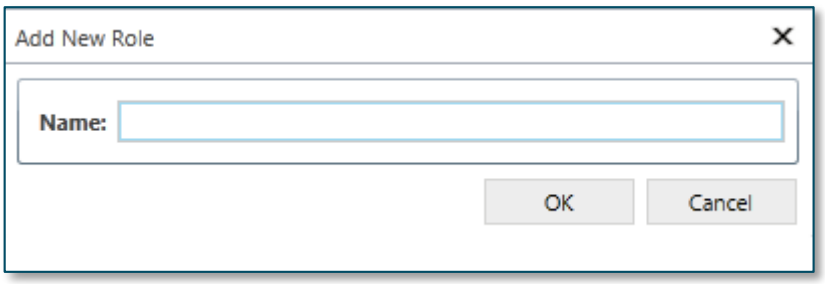
Figure 92: Roles Form



The *Permissions* area enables adding new permissions, deleting assigned permissions, or refreshing the permissions list. When adding a new permission to the role, the administrator can select from the list of existing permissions:

The *Users in this Role* area displays all users that are associated with this role.

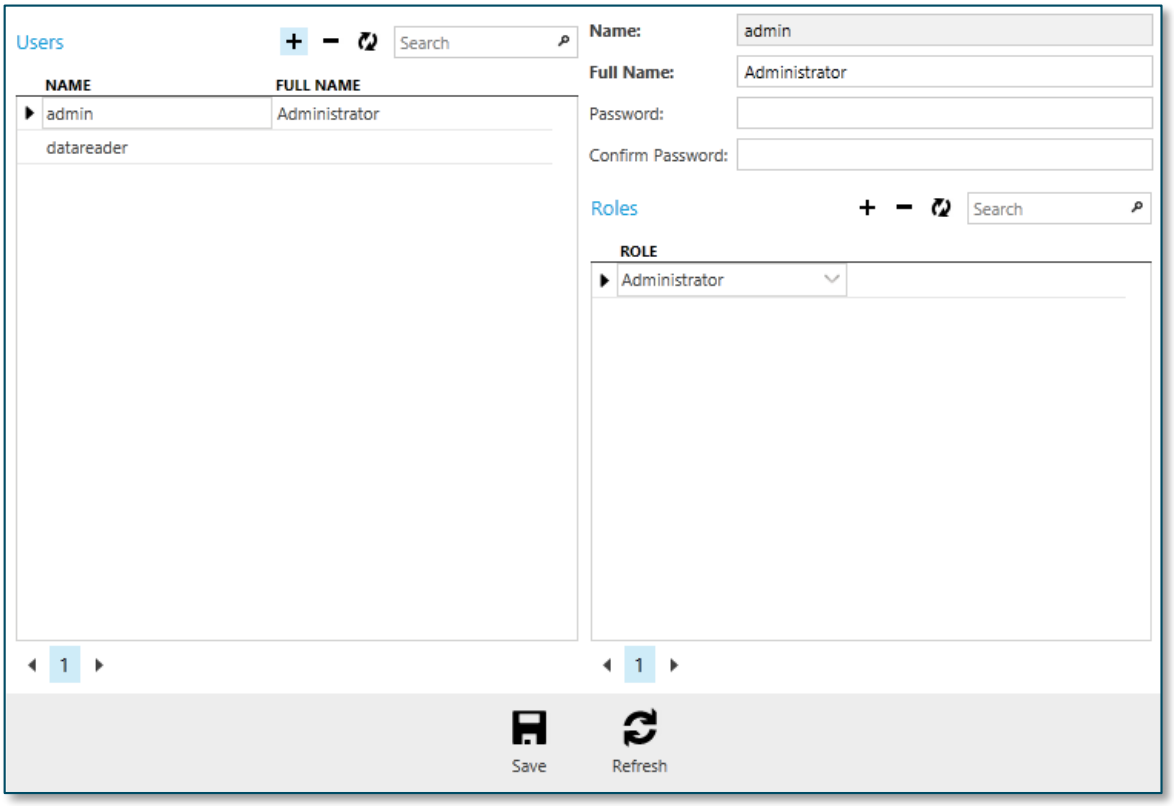
Figure 93: Add New Role



4.9.2. Users

The Users form (*Figure 94*) manages users. Each user that is created, requires a role assigned.

Figure 94: Users Form



The following properties must be set for a user:

- **Name** – is the name used to login.
- **Full Name** – user's full name displayed in the top right corner.
- **Password** – user's password used to login to the application.
- **Confirm Password** – write the same password from the Password field, to confirm the intended password was set.

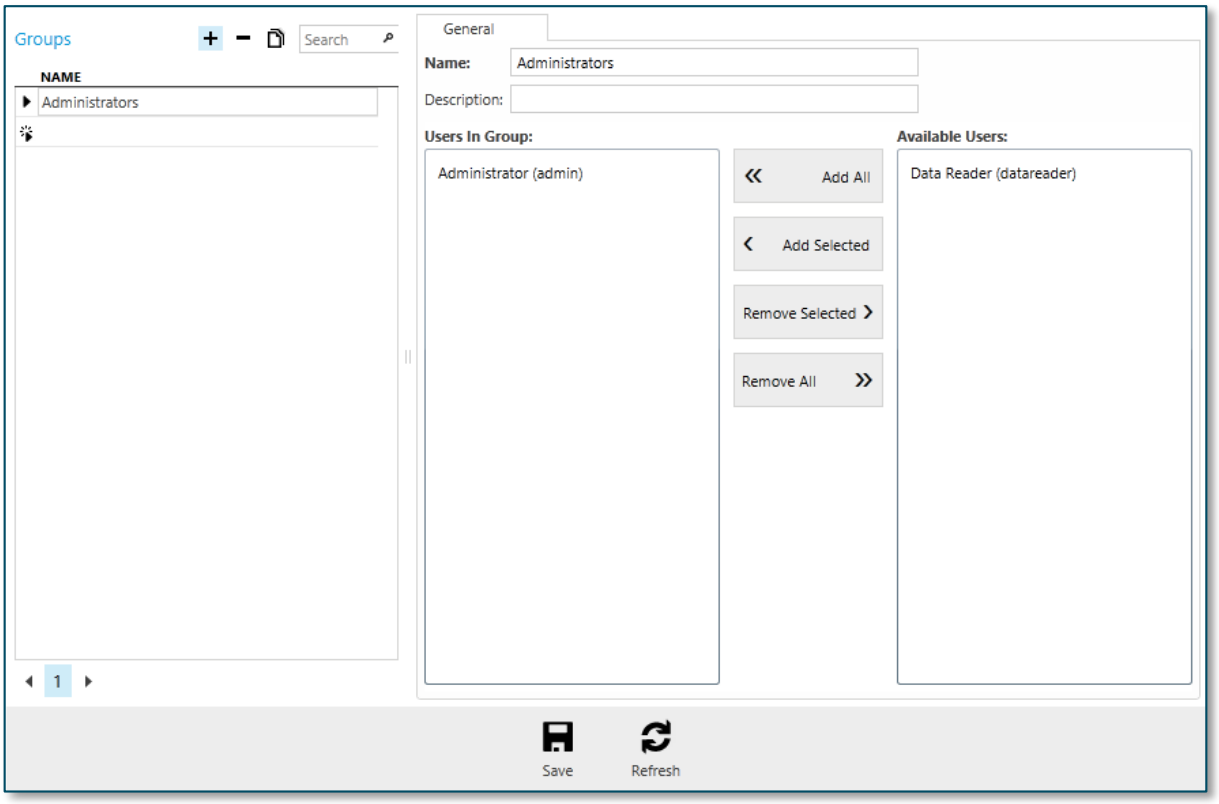
The Roles area enables adding new roles, deleting existing roles, refreshing the roles list, or searching roles using the search box. When adding a new role to a user, the administrator can select from the list of existing roles configured in the Roles form (see section *4.9.1*).

4.9.3. Groups

The Groups form (*Figure 95*) manages groups of users. Users can be added to groups, to manage access to *Sources* (KPIs, Grids, Tickers, Banners, External, Sequences), Layouts, Screen Groups, *Calculations* (Connectors and KPI/Grid calculations). *Sources* and *Calculations* have a security tab to assign group(s).

Each *Source* and *Calculation* has a group called *Everyone* by default. All users in DW belong to the *Everyone* group. This group is not visible in the Groups form.

Figure 95: Groups Form



4.9.4. Menu Security

A user has access to menu options depending on the permissions the Role has been assigned.

Figure 96: Menu Items

The following is a list of menu options each permission has access to:

- **Client Access**
  - Sources
- **Front End Administration**
  - Screens
  - Sources
  - Notification
    - Rules
- **System Administration**
  - Calculation
  - Notification
    - Settings
    - Channels
  - Enumerations
  - System
    - Settings
    - Default Values
- **Security Administration**
  - Groups
  - Roles
  - Users

4.10. Help

4.10.1. About

This page displays information about DW Product Version, DW License Agreement and Audio Files License.

4.10.2. Admin Guide

This is a link to a local copy of the Administration Guide for 2Ring DASHBOARDS & WALLBOARDS application. Administrators should use this guide for the installation process. This guide is only visible to DW Administrators.

In the menu navigate to Help and click Admin Guide.

4.10.3. Customization Guide

This is a link to a local copy of the Customization Guide for 2Ring DASHBOARDS & WALLBOARDS application. It describes how to register a custom connector. This guide is only visible to DW Administrators.

4.10.4. User Guide

This is a link to a local copy of this guide. In the menu navigate to Help and click User Guide.

4.10.5. UCCE Installation Guide

This is a link to a local copy of this guide. This document serves as an admin guide on how to install UCCE Connector. This guide is only visible to DW Administrators.

4.10.6. UCCE User Guide

This is a link to a local copy of this guide. This document serves as a user guide for 2Ring UCCE Connector. It contains descriptions for KPIs that can be displayed in the Desktop Client Application or WEB Client.

4.10.7. UCCX Installation Guide

This is a link to a local copy of this guide. This document serves as an admin guide on how to install UCCX Connector. This guide is only visible to DW Administrators.

4.10.8. UCCX User Guide

This is a link to a local copy of this guide. This document serves as a user guide for 2Ring UCCX Connector. It contains descriptions for KPIs that can be displayed in the Desktop Client Application or WEB Client.

4.11. User

4.11.1. Logout

To logout, navigate to USER menu item and click Logout or simply close the browser.

4.12. Access Privileges

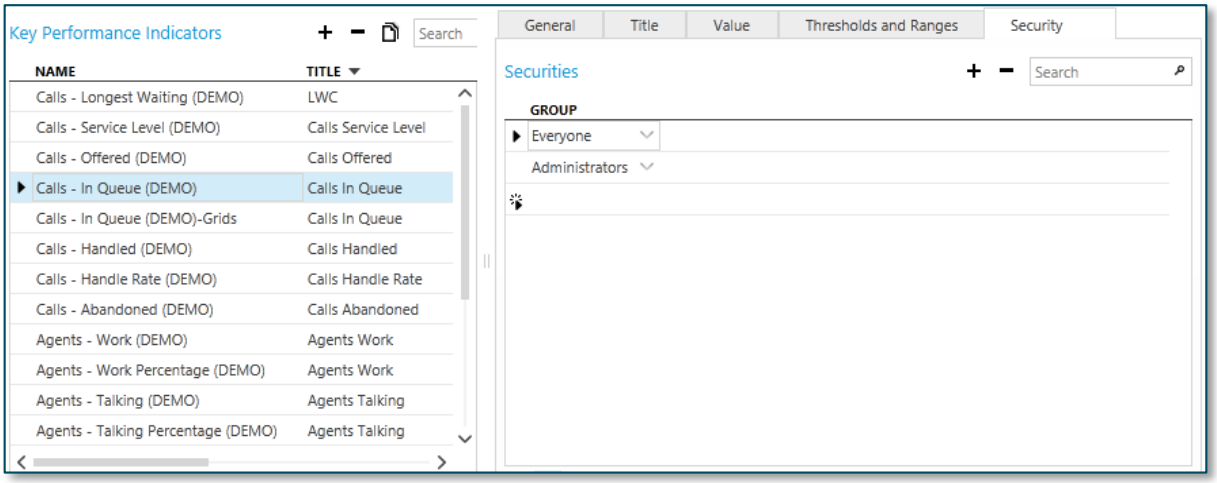
All Source, Screen and Calculation sections contain a Security tab. The Security tab of an item is a list of groups that have access to it.

For an item to be displayed in the list for a user, the following rule applies:

- User must belong to one of the groups listed.

Notice: Items with all groups removed will need to be restored by the administrator.

Figure 97: Security tab



Sources:

- KPIs
- Grids
- Banners
- Tickers
- Externals
- Sequences

Screens:

- Layouts
- Screen Groups

Calculations:

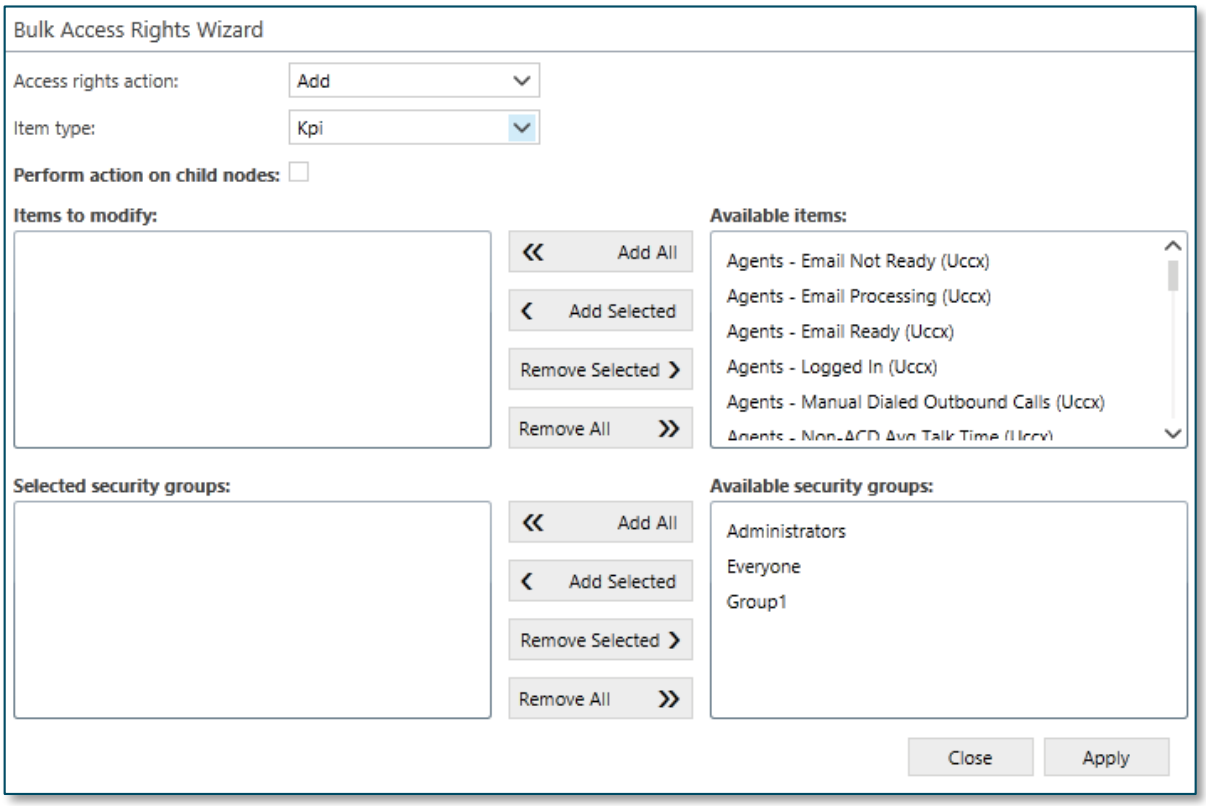
- KPI calculations
- KPI calculations - Derived
- Grid calculations

4.13. Bulk Access Rights Wizard

Assigning or removing access privileges to a large number of source items can be a tedious and time consuming task. The security tab of each source item must be accessed to manage security by adding/removing groups. In some scenarios, it may be beneficial to manage security rights for source items in bulk to save time.

Using the bulk wizard, select the *Access rights action* (add rights, remove rights) to be performed on the selected source item(s). The available source items populate by selecting a source type from the *Item type* property. Once the items have been selected and placed into *Items to Modify* container, select the groups that will be applied to the selected source items for the specified action.

ATTENTION! The security wizard does not warn you if you incidentally remove permissions that grant you the rights to perform changes. In most cases it is advised to leave the Administrators group assigned to all entities.



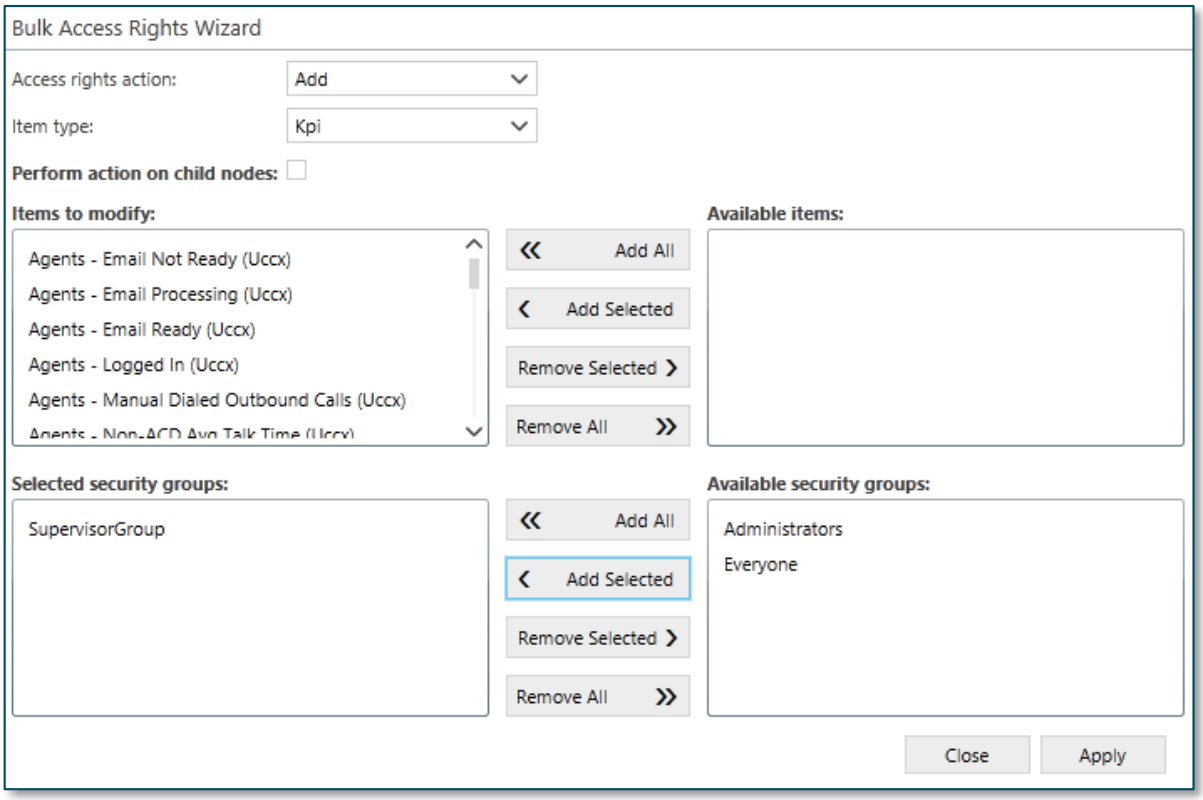
- **Access rights action** – action to be performed on the selected source item(s). Use one of the following actions:
  - **Add** – add access rights on selected source items for selected groups.
  - **Remove** – remove access rights on selected source items for selected groups.
  - **Set** – set access right on selected source items for only the selected groups. Equivalent to removing access right on selected items for all groups and then adding the access rights on selected items for the selected groups.
- **Item Type** – the source type (Ex: KPI, Grid, etc) for which to manage security rights.
- **Perform action on child nodes** – Sources that contain
- **Items to modify** – selected items to modify security rights.

- **Selected security groups** – selected user groups that will be applied to the selected sources items for the specified action.

Example

Give access rights to Supervisor Group to all KPI sources. Set the following properties:

- **Access rights action**: select action Add.
- **Item Type**: KPI.
- **Items to modify**: Click **Add All** button to add all items from available items.
- Selected security groups: Add Supervisor Group from available security groups by clicking **Add Selected** button.



CHAPTER 5
SECURITY MECHANISM

In some scenarios, the calculated data may be of a private nature and it is therefore useful or even required to restrict access to the data to specific groups of people.

DW allows to manage access rights at multiple levels. The most obvious access settings are those set at the Screen Group level. By restricting access to a Screen Group to one or more groups of users, only the members of the associated user group can access the Screen Group. Other users do not see such a Screen Group in their clients.

The access settings can also be set at more granular levels such as a Layout, KPI, Grid, Banner or other sources.

If a specific source, be it a grid, KPI or other source, is inaccessible to a user and is part of a Screen Group that is accessible, the Clients will still work but only the specific components that are accessible are displayed.

It is also possible to restrict access to specific calculation(s) so that it is impossible to include a private calculation result into a newly created Layout or Screen Group.

5.1. Key Security Entities

- User
  A User is a person accessing the calculated data via a Client or configuring the system via the CONFIG Tool. Some organizations create User Accounts for each individual while others use a shared User Account. There is no preferred option and there are no Licensing constraints associated with either of these approaches. DW is not licensed per registered User Account.
- Permission
  A Permission is a named assignable authorization of performing a set of related actions. The list of permissions is fixed and are created by the system. An example of a permission is *ClientAccess.*
- Role
  A Role is a named set of Permissions assigned to Users commonly performing similar actions. An example of a role is *Client* or *Supervisor*. A standard set of Roles is created by the system, although new Roles can be created too.
- Group
  A Group is a named collection of Users that can be granted access rights to an entity. Only 2 Groups come with the system but new Groups can be created to better map Security requirements of the deployment.
  - Everyone
    A virtual group that all users belong to implicitly. It is not possible to manage members of this group.
  - Administrators
    A group of specific users that by default can access and configure all entities. The system created administrator user account belongs to this group although more user accounts can be added.
- Access Rights
  Access rights are granted to a specific Group on a specific entity in the Security Tab of the entity.

5.2. Understanding the security mechanism

A User is assigned a Role and belongs to a Group of users. The Group of users is granted several access rights on multiple entities (Screen Groups, KPIs, Grids).

The role governs what actions the User can perform. The Group membership governs which entities these actions can be performed on.

Example:

User *Frank Doe* is assigned a Role of *Supervisor*. He is a member of the Group named *Team London*. A fellow worker *John Nash* is assigned a Role of *Client* and is member of the same Group.

Team London is granted rights on 2 Screen Groups *London Stats* and *London RealTime*.

Frank Doe can access both Screen Groups using his client and can manage both Screen Groups. John Nash is not able to manage the Screen Groups but can access them via the client.

Neither of them are able to access nor manage any other Screen Groups.

5.3. Simplified and Anonymous access to Screen Groups

To access Screen Groups on devices that make it hard or even impossible to enter the URL and credentials, DW provides a mechanism for simplified and possibly anonymous access.

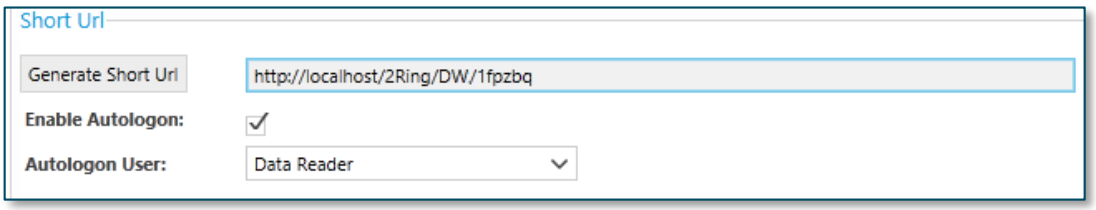
A Screen Group can be made accessible via a shortened URL. This URL is generated so that it is as short as possible for easier input into the device and cannot be guessed easily.

If the device works in non-interactive mode and there is no way to enter credentials, an auto-logon user can be associated with such Screen Group. Even in this mode, security restrictions still apply with respect to the auto-logon user.

To generate a shortened URL navigate to the Screen Properties tab of a Screen Group and Click **Generate Short URL** button.

If you also need to enable auto-logon, check Enable Autologon and pick an Autologon user from the choices provided.

Figure 98: Screen Group - Short URL



Bypassing security maybe beneficial in the following scenarios:

- Display Screen Group on plasma TV without credentials.
- Embed Screen Group in 2Ring GADGETS.

5.4. Security errors and client behaviour

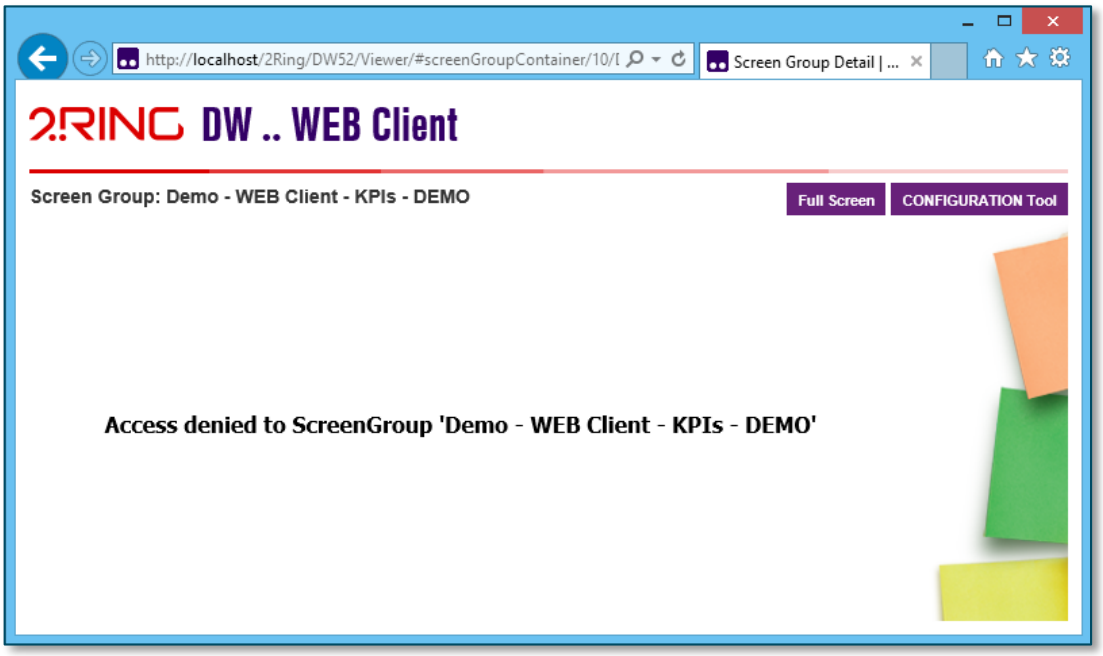
In some scenarios, Screen Groups or *Sources* on Screen Groups can become of a private nature over time and certain DW groups with access rights to these entities may have access taken away. The user belonging to the group losing access rights will be affected by this change. The DW client acts accordingly to these security changes for a Screen Group.

Each entity (Sources, Screens, and Calculations) has a refresh interval property. Once the refresh interval has been reached, the client displays a security error message automatically notifying the user that privileges have been removed without the need to reload the client. If at any point, access rights are granted back to the removed group when the error is displayed, the client will automatically display the Screen Group or Source once the refresh interval has been reached again.

The following error messages are displayed in a client for Screen Groups or for Sources on a Screen Group.

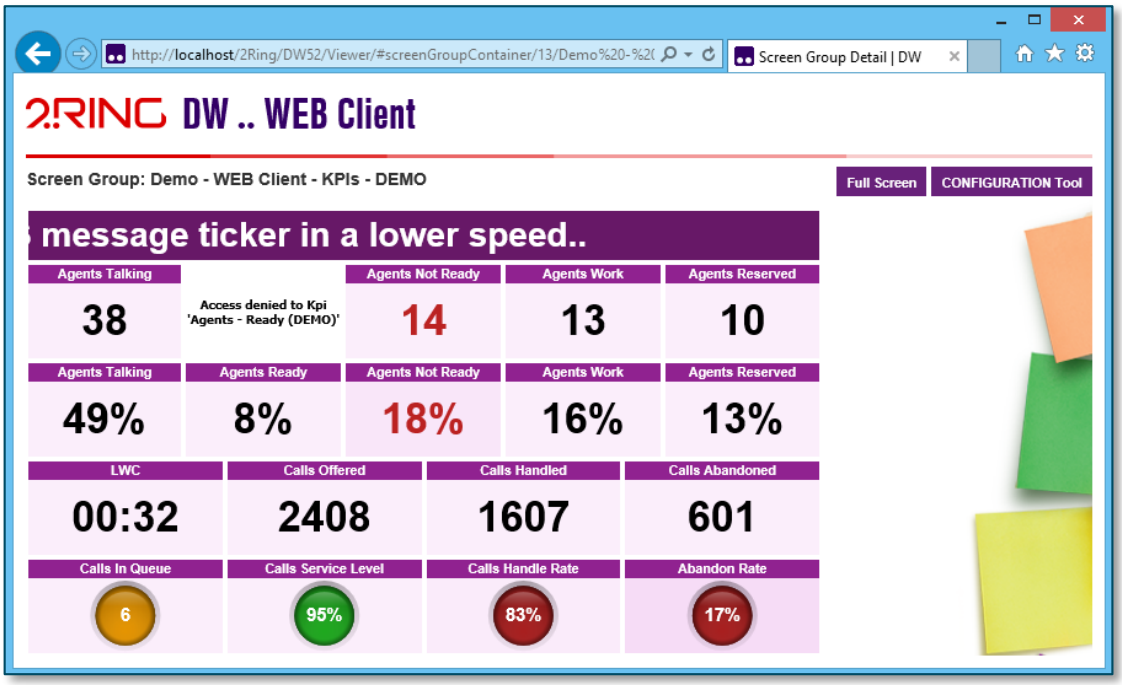
Screen Group

Figure 99: Access Denied to Screen Group



Source on Source Group

Figure 100: Access Denied to Source on Screen Group



CHAPTER 6
CHOOSING CLIENT PLATFORM

DW provides Clients for viewing content. DESKTOP Client and WEB Client. All the features that DW provides are not available in both clients. Depending on your needs choose the appropriate client by viewing the client comparison charts below.

Features	WEB Client	DESKTOP Client
Layout Sequences	✗	✓
Content Source Sequences	✗	✓

Content Sources	WEB Client	DESKTOP Client
KPIs	✓	✓
KPI Intervals	✓	✓
Banners	✓	✓
Tickers	✓	✓
Grids	✓	✓
Web	✓	✓
PowerPoint	✗	✓
Flash	✗	✓
Video (Microsoft Window Media player supported media file or a stream)	✗	✓
Images (jpg, png, gif, svg, etc)	✓	✓

Operating System	WEB Client	DESKTOP Client
Windows	✓	✓
MAC OS	✓	✗
Android	✓	✗
iOS	✓	✗
Windows Mobile	✓	✗

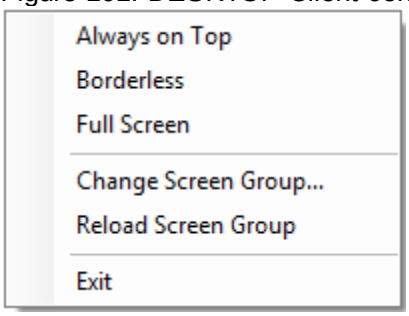
CHAPTER 7
DESKTOP CLIENT

This chapter details features of the DESKTOP Client application. The DESKTOP Client remembers its settings and position on the screen as well as the monitor it was last displayed on. If the last monitor is not available any more, DESKTOP Client moves itself to the primary monitor.

7.1. Context Menu

Most options and actions can be accessed via the context menu by right clicking on DESKTOP Client.

Figure 101: DESKTOP Client context menu



7.1.1. Always on Top

The Always on Top option sets DESKTOP Client to remain open on top of other windows at all times. To set this option right click on DESKTOP Client and click Always on Top.

7.1.2. Full Screen

The Full Screen option sets DESKTOP Client to occupy the entire screen. There are 2 ways to set this option. Press F11 on the keyboard or right click on DESKTOP Client and click Full Screen.

7.1.3. Borderless Window

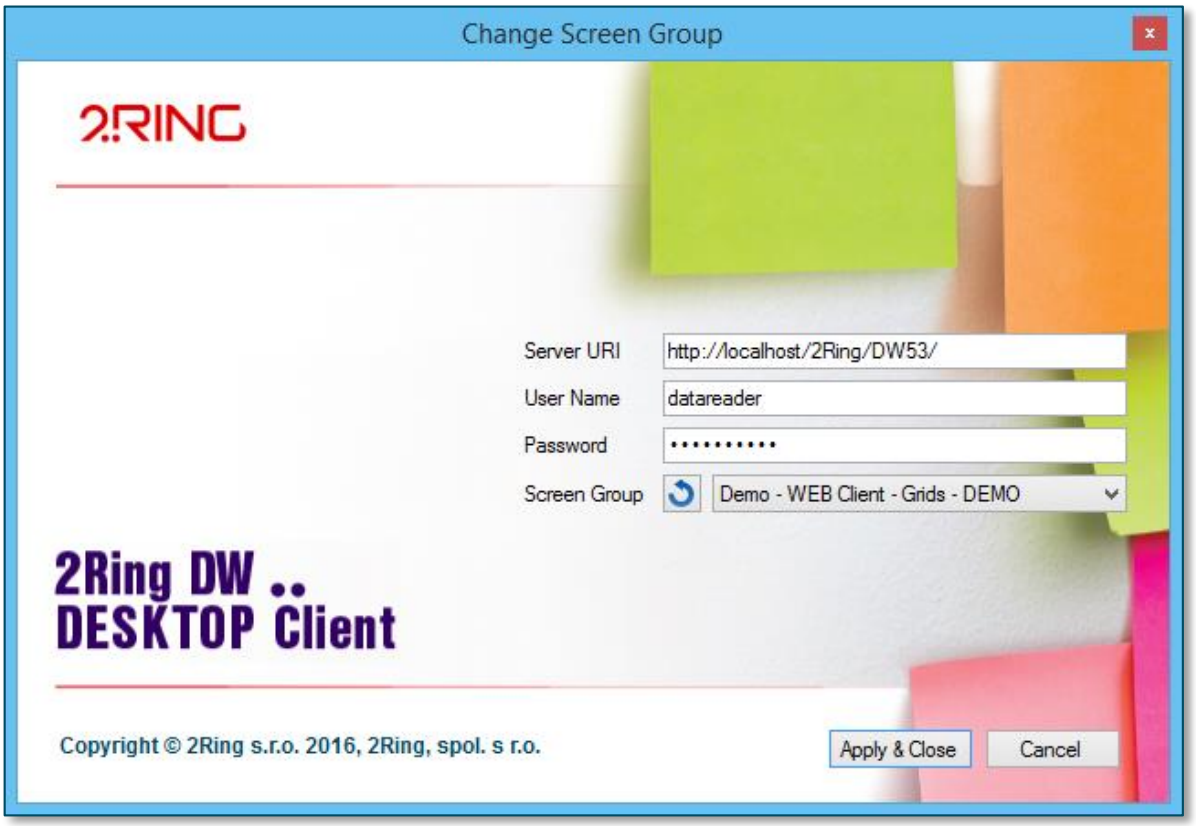
The Borderless window option displays DESKTOP Client without a title bar and borders. There are 2 ways to set this option. Double click on DESKTOP Client or right click on DESKTOP Client and click Borderless.

7.1.4. Change Screen Group…

The Change Screen Group… option shows the Change Screen Group selection dialog in DESKTOP Client Application. In this dialog, it is also possible to change the default configuration options.

- **Server URI** – URI address which points to the DASHBOARDS & WALLBOARDS web application. The Desktop Client Application uses this URI to access the web services which are used to load the selected Screen Group Layout. The default value is http://tworing.cloudapp.net/DW42, which represents default 2Ring DW demo environment.
- **User Name** – User which will be used to access WEB Client/DESKTOP Client. The default User Name is "datareader". It can be changed to any valid user, which is configured in DW – CONFIGURATION Tool. The user must have ApiDataReader role assigned.
- **Password** – Password of user. The default value is "datareader" for user "datareader". Please change this password if you require stronger security.
- **Screen Group** – List of available Screen Groups configured in DW CONFIGURATION Tool. To change the default Screen Group, select a Screen Group from the list and click Apply & Close.

Figure 102: Change Screen Group dialog



7.1.5. Reload Screen Group

The Reload Screen Group option causes the Screen Group Layout to reload.

7.1.6. Exit

The Exit option causes the DESKTOP Client application to exit.

CHAPTER 8
WEB CLIENT

This chapter details the WEB Client application. The WEB Client enables the viewing of Screen Groups on any platform in a browser. The following browsers are supported:

- Internet Explorer 8 or higher
- Mozilla Firefox
- Chrome
- Safari on iOS and MacOS

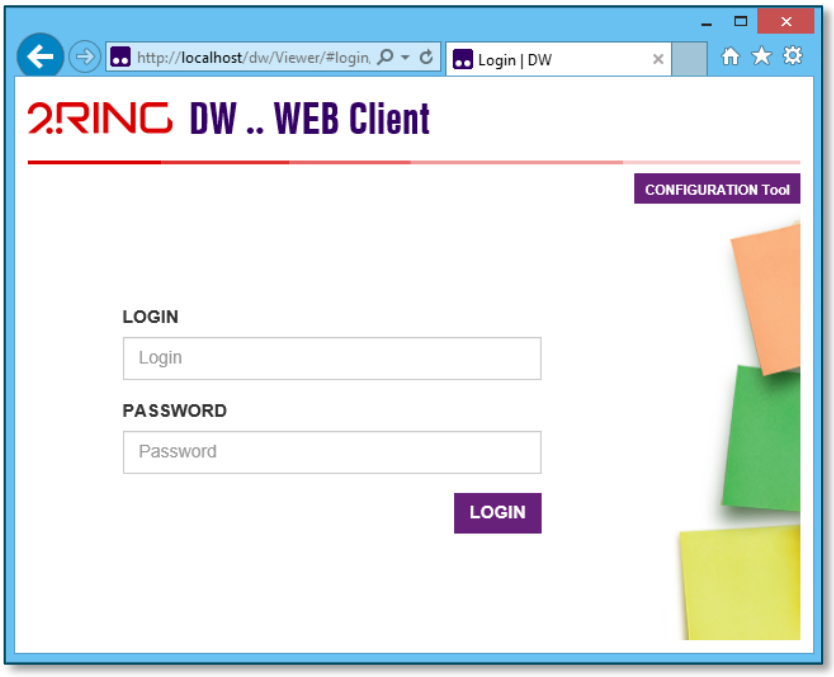
To access the WEB Client go to the following URL: http://Hostname/ApplicationPath

Replace the following placeholders in the URL:

- **Hostname** – the IP address or hostname of server where 2Ring DW is installed.
- **ApplicationPath** – virtual path for DW in IIS. By default, during installation the application path is 2Ring/DW.

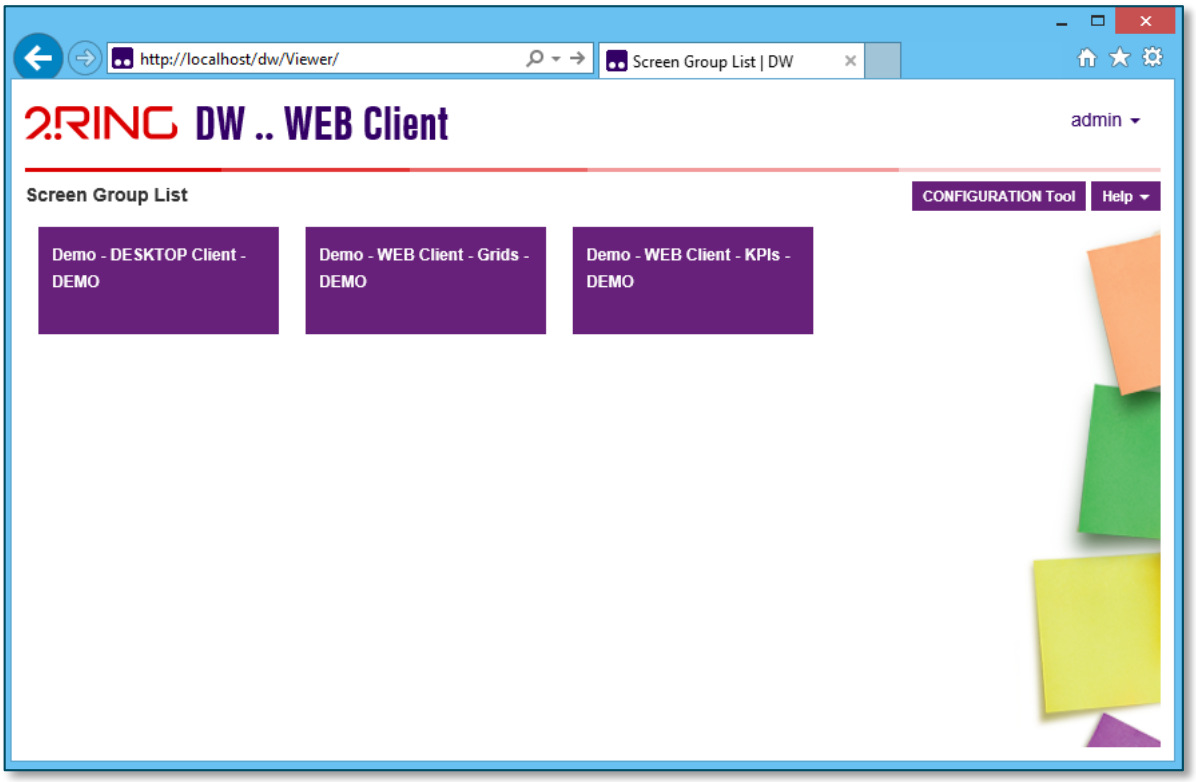
The following page should be displayed when the WEB Client loads (*Figure 103*). Enter the credentials used to log into DW Configuration Tool.

Figure 103: Authentication to DW



Once authenticated, a list of *Screen Groups* (*Figure 104*) should be displayed.

Figure 104: Screen Group List



Each tile represents a Screen Group.

To view a Screen Group, click on a tile.

To return to the list from a Screen Group, press the browser back button or the 2Ring DW logo in the upper left corner.

Screen Groups that are not fully compatible in WEB Client are shown with a notification icon in the bottom right corner of the tile. These are Screen Groups with multiple Layouts or Layouts that contain content sources not supported in WEB Client. These Screen Groups will partially display.

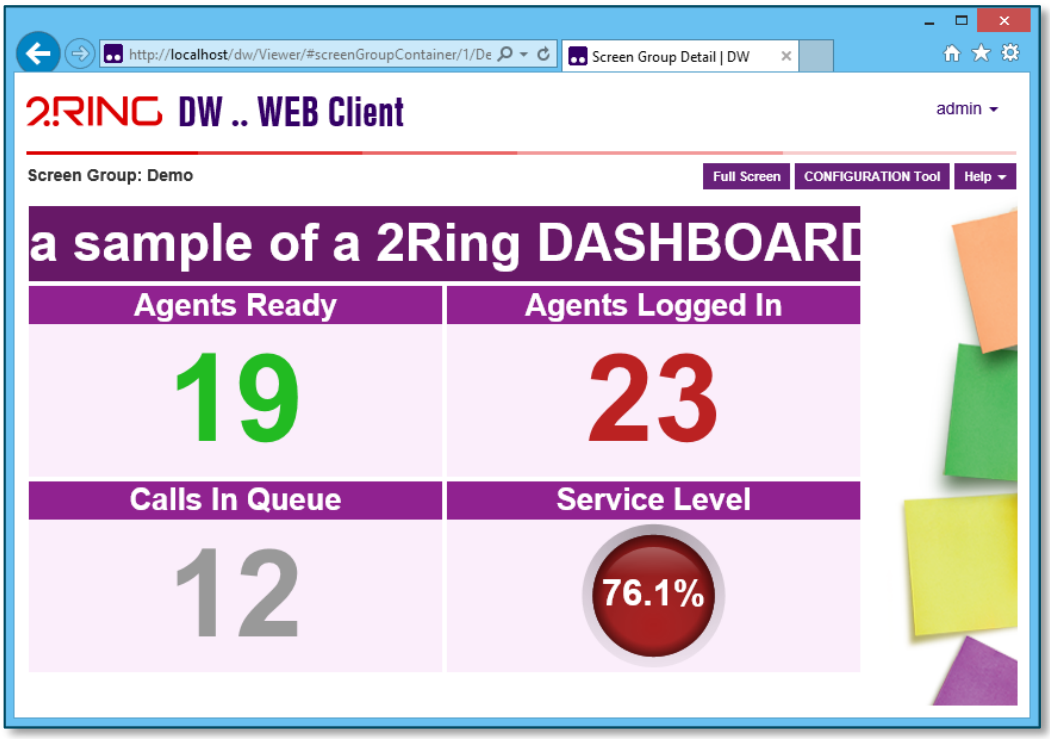
To modify a Screen Group, navigate to DW CONFIGURATION Tool by clicking the CONFIGURATION Tool button in the WEB Client header. WEB Client supports bookmarking URLs.

The user account used to login into the WEB Client is visible in the WEB Client header above the CONFIGURATION Tool button. The account username is shown. To log out from the WEB Client, click on the account username and click the Logout button.

DW help guides can also be accessed in the WEB Client header. Click on the Help button and a drop down list of guides will be shown.

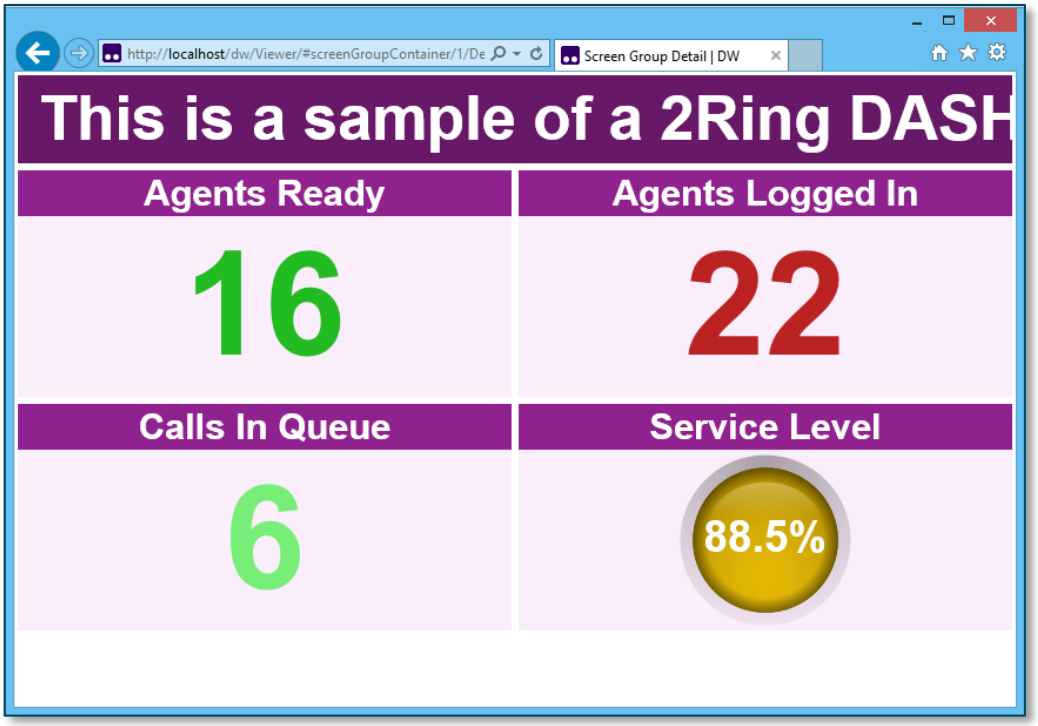
In the following example below (*Figure 105*), Screen Group Demo is displayed.

Figure 105: Screen Group Demo



A Screen Group can be put into full screen mode (fully expanded inside browser *Figure 105*) by clicking the Full Screen button in the top right corner. To return to regular mode press the browser back button.

Figure 106: Full screen mode



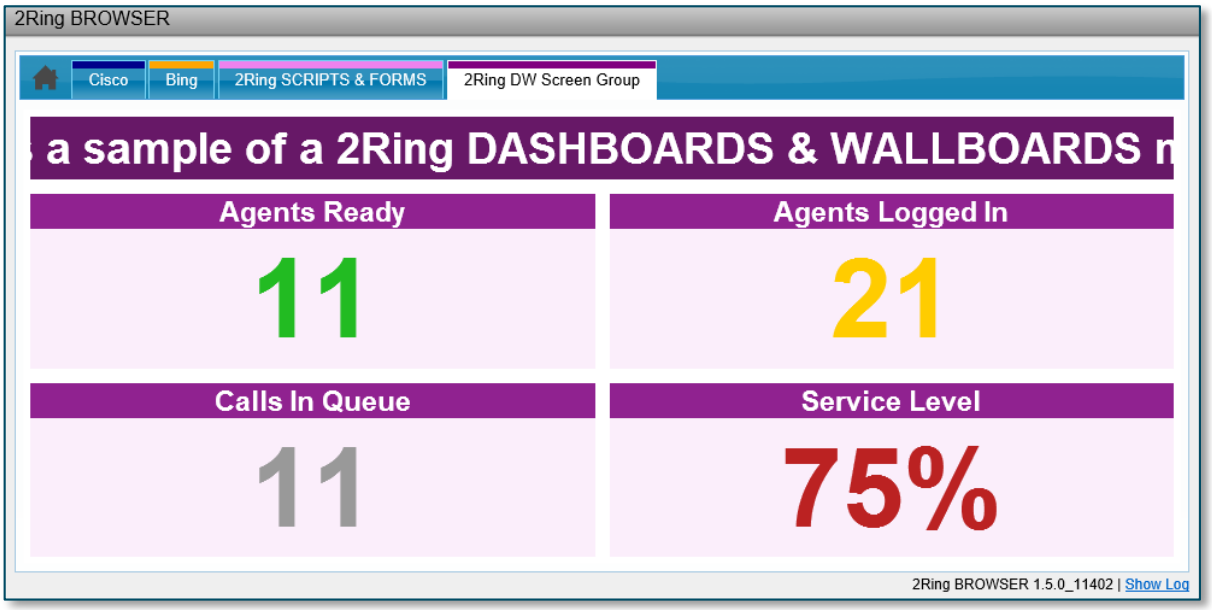
Notice: WEB Client does not support Screen Group Layout Sequences. If a Screen Group contains multiple layouts, the Screen Group will not be fully compatible in WEB Client and only the first Layout will be displayed. A notification icon will be shown on the Screen Group tile.

8.1. Host Screen Group in Browser Gadget (Cisco Finesse)

To view a Screen Group in the 2Ring BROWSER gadget, the following code below must be added to the browser's config.js file located under configuration folder. Add a new entry into the tabs property. Replace placeholder URLtoDWScreenGroup with the URL to a Screen Group by accessing Configuration Tool, go to Screens -> Screen Groups, choose a Screen Group, click Preview and copy the URL from the address bar. For more information on configuring Browser gadget consult config-sample.txt file located under configuration folder.

```
tabs: [
// other tabs …..,
{ id: "tab_DW", title: "DW Screen Groups", url: "URLtoDWScreenGroup",
color: "purple", userClose: false }
],
```

Figure 107: Screen Group displayed in Cisco Finesse



CHAPTER 9
TIPS AND TRICKS

9.1. Running 2 or more Clients from a single PC

It is not possible to run multiple instances of DESKTOP Client on a single machine. Therefore, a combination of a DESKTOP Client and one or more WEB Clients has to be used. Any Layout that contains External source(s) that is not content type: Web or Image must be displayed on DESKTOP Client since WEB Client only supports internal sources and external sources of Web or Image content type. The following configuration options are available:

- Run 1 or more WEB Clients.
- Run 1 or more WEB Clients and 1 DESKTOP Client.

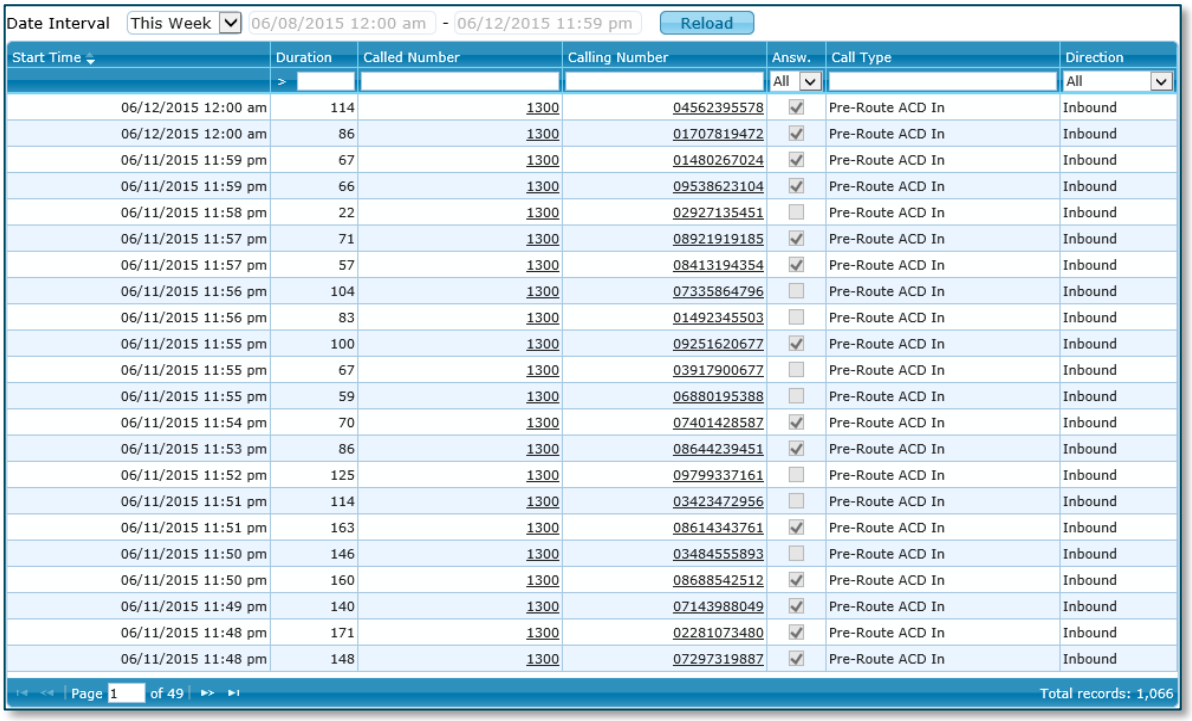
CHAPTER 10
DW REPORTS

2Ring Dashboards & Wallboards provide reporting on Agent Call History or Agent State Trace. These historical reports allow a supervisor verify call center information on a specific agent within a specified date interval.

10.1. Agent Call History

The DW Agent Call History report displays call history information for an agent within a specified date interval.

Figure 108: Agent Call History Report



When the report is loaded for the first time, today's inbound/outbound calls will be shown. The report can be searched for different date intervals by using the Date Interval drop down list. Columns that can be filtered have a textbox below the column header. The called and calling number columns have a click to dial feature. The reload button will refresh the data for the selected Date Interval.

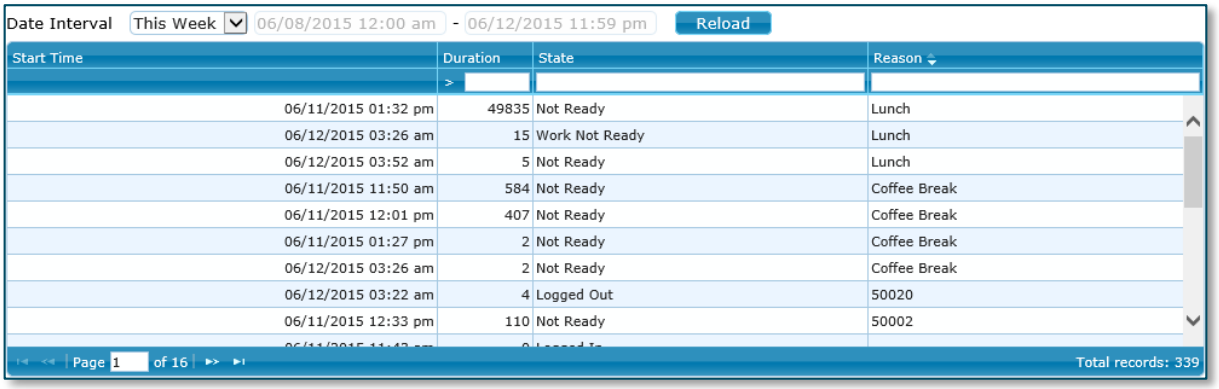
The Agent Call History report displays the following columns:

- **Start Time** – time the call started.
- **Duration** – length of the call in seconds.
- **Called Number** – number dialed.
- **Calling Number** – number called from.
- **Answered** – call was handled by the agent.
- **Call Type** – type of call center call.
- **Direction** – was the call inbound or outbound.

10.2. Agent State History

The DW Agent State Trace report displays call center state information for an agent within a specified date interval. The report contains column filters to quickly located desired records.

Figure 109: Agent State History Report



When the report is loaded for the first time, today's agent state changes will be shown. The report can be searched for different date intervals by using the Date Interval drop down list. Columns that can be filtered have a textbox below the column header. The reload button will refresh the data for the selected Date Interval.

The Agent State History report displays the following columns:

- **Start Time** – time the agent changed state.
- **Duration** – the length of time during which the agent/supervisor has been in the specified contact center state.
- **State** – Agent's state in the contact center, e.g. Not Ready, Ready, Talking, etc.
- **Reason** – reason why the supervisor or agent is in the Not Ready state.