InfoFabrik
gmbh

ReportServer

User Guide 6.0

ReportServer

User Guide 6.0

InfoFabrik GmbH, 2026

http://www.infofabrik.de/
http://www.reportserver.net/

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Chapter 1

Introduction

Business Intelligence

Business Intelligence refers to the ability to view all data of a company in a consolidated manner and to derive information that supports management and decision-making. The basis for this is the consolidated preparation of all accumulated data, for example in a data warehouse. ReportServer provides the interface to this data and enables end users to use it easily and efficiently. From print-ready reports to individual ad hoc analyses, ReportServer offers tools that support you in your daily work.

In the following, ReportServer is described for end users. From executing pre-built reports to creating your own complex analyses, all tools relevant for your daily work are presented.

This manual is structured into the following sections:

First Steps

A quick introduction to ReportServer: this section introduces the basic structure of the interface and shows how you perform typical daily tasks, such as executing reports.

TeamSpace

The TeamSpace is your personal workspace in ReportServer. In this chapter we discuss details of operating and configuring the TeamSpace.

Reports

ReportServer combines different report types within a single interface. This section covers the specific characteristics of the supported report types and explains concepts common to all report types.

Dashboard

Dashboards allow you to see all important information at a glance. This chapter explains how to create your own dashboards and adapt them to your requirements.

Ad Hoc Reporting: The Dynamic List

The report type "Dynamic List" provides extensive options for assembling ad hoc analyses. In this chapter we first present the basic functionality, such as selecting and filtering data. We then discuss advanced techniques such as aggregation, advanced filtering, and computed fields. Finally, the templating functions of the Dynamic List are introduced.

Pivot Mode of the Dynamic List

Here we present the pivot mode of the Dynamic List, which allows you to analyze data, prepare it hierarchically or as a cross-tab, and create charts.

The Analysis View

The analysis view is the common view used by the pivot mode of the Dynamic List as well as by OLAP reports. Using examples, we discuss this topic in more detail.

Scheduling

ReportServer allows you to execute reports on a time-controlled basis and, for example, send the result to your email inbox. The scheduling functions are presented in detail.

If you have questions or suggestions for improvement, we would be pleased to hear from you. You can reach us by email at `info@infofabrik.de`*. We are also happy to answer your questions in our forum, which you can find at* `http://forum.reportserver.net/`*.*

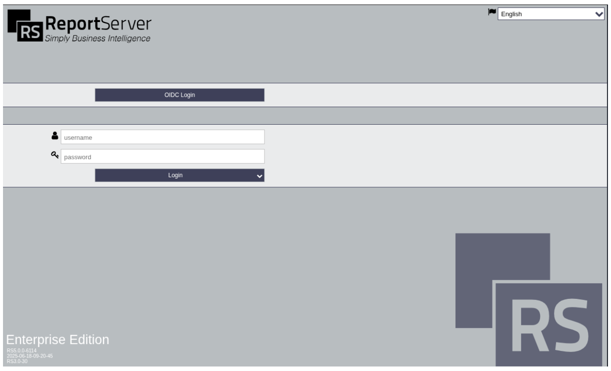
Chapter 2

First Steps

The following chapter gives you an initial overview of the most important functions of ReportServer. We will show you, among other things, how to log on to the system, how to navigate the interface, how to use the TeamSpace, and the basics of executing reports.

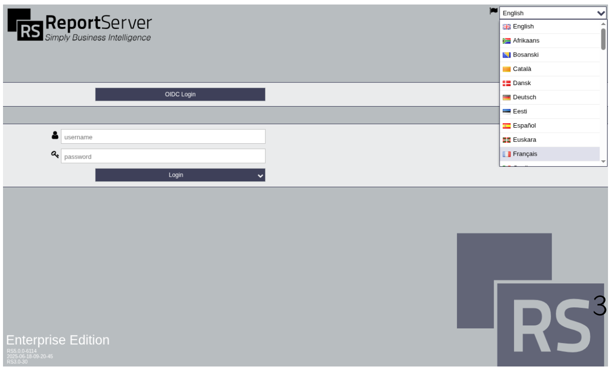
2.1 Logging in to ReportServer

In the following, we show you how to log in to ReportServer. Please note that the login dialog may look slightly different depending on how ReportServer is configured in your organization. To find out which login method is used in your company, please contact your system administrators. ReportServer provides two different ways to log in: A) Login using 'credentials' or Option B) Login using 'OIDC'.



Additional Options

In addition to entering your login information, further options may be configured during login. These settings apply only to the following session. This includes, among other things, the display language. The user can simply select the preferred language in the upper right corner.



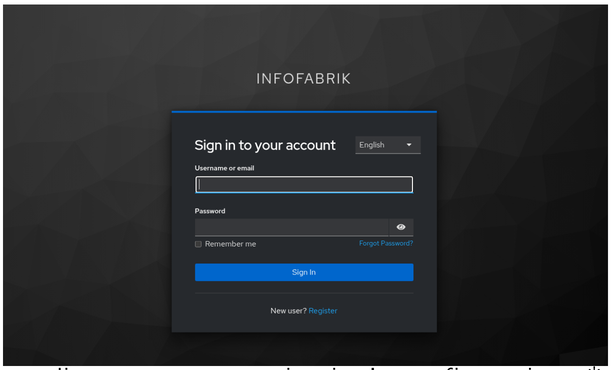
Login

When logging in, the following information is requested in the login window:

- Username
- Password

Please note that a maximum number of failed login attempts may be configured. If the maximum number of failed login attempts is reached, your account will be blocked automatically. It can only be used again after a waiting period has elapsed, or after being reset manually by an administrator.

OIDC



With the new ReportServer version 6.0.0, we introduce the new system “OIDC” (OpenID Connect – a modern, secure authentication standard). Depending on how your organization has configured ReportServer, you either log in via the “old” login interface or via the new “OIDC Login” button. With SSO (Single Sign-On), it is also possible to sign in only once and then access multiple applications automatically. You will then be redirected and can log in there, depending on your organization’s configuration. * Depending on the organization, the OIDC login window may also look different.

Remark. More information is available at the following link: ’Config-Guide’.

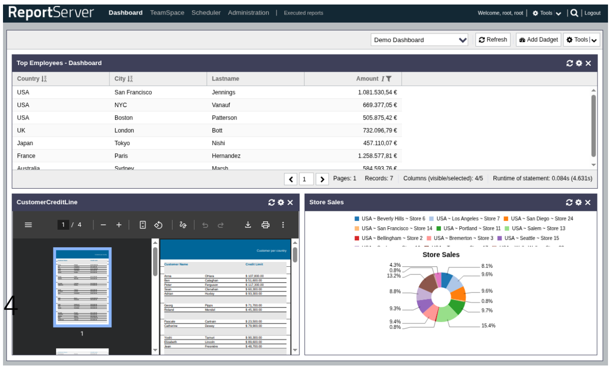
Forgotten Password

If you have forgotten your password, select the “Forgot password” option in the menu next to the **OK** button. Then enter your username in the “Forgot password” window. A new password will be sent to the email address stored for your account.

Please note that your administrator can disable the “Forgot password” button. This is described in the Configuration Guide.

2.2 The User Interface

After successfully logging in to ReportServer, you are in the ***Dashboard module***, which allows you to create an individual overview page. In addition to the dashboard, ReportServer is divided into further modules that you may have access to depending on the configuration. You can



Country	City	Lastname	Amount
USA	San Francisco	Jennings	1.081.530,54 €
USA	NYC	Vanauf	669.377,05 €
USA	Boston	Patterson	505.875,42 €
UK	London	Bott	732.096,79 €
Japan	Tokyo	Nishi	457.110,07 €
France	Paris	Hernandez	1.258.577,81 €
Australia	Sydney	Marsh	584.593,76 €

Pages: 1 Records: 7 Columns (visible/selected): 4/5 Runtime of statement: 0.084s (4.631s)

Customer Name		Credit Limit
Anna	OHara	$ 107,800.00
Ben	Calaghan	$ 51,600.00
Peter	Ferguson	$ 117,300.00
Sean	Clenahan	$ 60,300.00
Adrian	Huxley	$ 93,300.00
Georg	Pipps	$ 71,700.00
Roland	Mendel	$ 45,300.00
Pascale	Cartrain	$ 23,500.00
Catherine	Dewey	$ 79,900.00
Yoshi	Tamuri	$ 90,300.00
Elizabeth	Lincoln	$ 89,600.00
Jean	Fresnière	$ 48,700.00

switch between modules using the module bar at the top of the screen. In the upper area of the screen you will also find the search function; by clicking on your name you can view and edit your user profile.

In the user profile you will also find the option to change your password. At the very bottom of the window you will find the status bar; depending on the system configuration, additional information may be displayed here, e.g. the current data status.

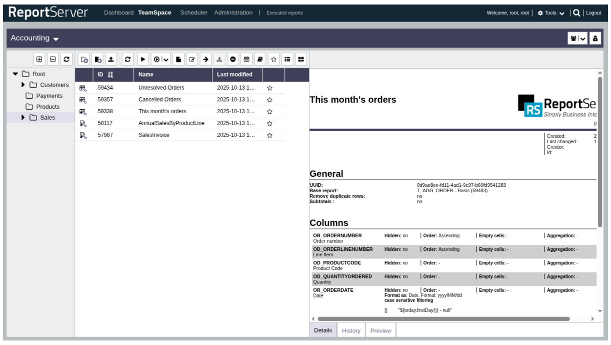
The TeamSpace

The main work area for ReportServer users is the TeamSpace. You can select it in the module bar at the top of the screen.

The TeamSpace

The TeamSpace provides separate work environments for user groups or teams. A team is any size group of users working with shared report objects. Users can form teams and manage their TeamSpaces independently using simple role-based user administration. For example, it is possible to add individual users as guests in a TeamSpace so that they cannot make any changes.

Similar to Windows Explorer, the TeamSpace provides a folder structure. On the left, you can open the explorer bar to get an overview of all available directories. By clicking a folder, you open it in the content area in the middle of the screen. By default, the root folder (the top-level directory) is displayed. Using the view buttons in the toolbar of the content area, you can reconfigure the display.



ID	Name	Last modified
59434	Unresolved Orders	2025-10-13 1...
59357	Cancelled Orders	2025-10-13 1...
59338	This month's orders	2025-10-13 1...
58117	AnnualSalesByProductLine	2025-10-13 1...
57987	SalesInvoice	2025-10-13 1...

This month's orders

Created: 2
Last changed: 1
Creator:
Id:

General

UUID: 0d9ae8ee-fd11-4ad1-9c97-b60fd9541283
Base report: T_AGG_ORDER - Basis (59483)
Remove duplicate rows: no
Subtotals : no

Columns

OR_ORDERNUMBER Order number	**Hidden:** no	**Order:** Ascending	**Empty cells:** -	**Aggregation:** -
OD_ORDERLINENUMBER Line Item	**Hidden:** no	**Order:** Ascending	**Empty cells:** -	**Aggregation:** -
OD_PRODUCTCODE Product Code	**Hidden:** no	**Order:** -	**Empty cells:** -	**Aggregation:** -
OD_QUANTITYORDERED Quantity	**Hidden:** no	**Order:** -	**Empty cells:** -	**Aggregation:** -
OR_ORDERDATE Date	**Hidden:** no **Format as:** Date. Format: yyyy/MM/dd **case sensitive filtering** [] "${today.firstDay()} - null"	**Order:** -	**Empty cells:** -	**Aggregation:** -

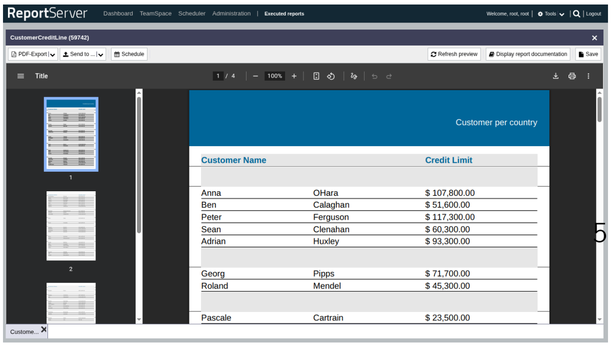
In the detail view, additional information about the currently selected object is displayed. Depending on the object, different information is available, which you can switch between using the tabs at the bottom.

Double-clicking an object opens it. You can open the context menu using the right mouse button; it contains further commands. Moving objects works as usual via drag-and-drop.

You can find further information on the TeamSpace in Chapter TeamSpace on page 9.

2.3 Executing Reports

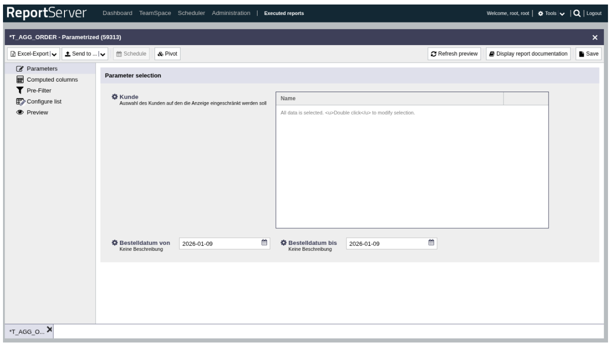
ReportServer distinguishes between different report types that cover different aspects of reporting. Further details on the different report types that are relevant from a user perspective



Customer per country

Customer Name		Credit Limit
Anna	OHara	$ 107,800.00
Ben	Calaghan	$ 51,600.00
Peter	Ferguson	$ 117,300.00
Sean	Clenahan	$ 60,300.00
Adrian	Huxley	$ 93,300.00
Georg	Pipps	$ 71,700.00
Roland	Mendel	$ 45,300.00
Pascale	Cartrain	$ 23,500.00

can be found in Chapter Reports. The different report types are described in detail in the Administration Guide. Reports are created and managed in ReportServer by administrators or report designers. As a user, individual reports are provided to you in the TeamSpace. From there, depending on the report type, you can further configure them, execute them, schedule them, and export them to different formats. Once configured, evaluations can be saved as so-called variants and executed again at any time with current data.



Parameter selection

Kunde
Auswahl des Kunden auf den die Anzeige eingeschränkt werden soll

Name
All data is selected. <u>Double click</u> to modify selection.

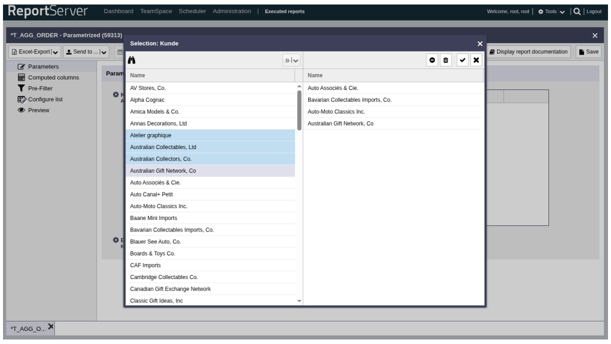
Bestelldatum von: 2026-01-09
Keine Beschreibung

Bestelldatum bis: 2026-01-09
Keine Beschreibung

By double-clicking a report object in the content area or using the "Open" button, you open the report view. A further area **Executed Reports** then appears in the module bar, providing access to the reports currently open. When the last report is closed, this area is no longer displayed. If multiple reports are open at the same time, you can switch between them using the tabs at the bottom of the screen. Reports can be closed via the corresponding icon in the tabs or via their context menus.

The view of an opened report is structured as follows: the toolbar contains general commands for executing and saving the report. On the left side you can select different aspects of report configuration. To see a preview of the report with your current configuration, select the **"Preview"** aspect. Using the **Export** menu, you can download the executed report in the desired format and save it on your computer.

If available, you can use the Parameters aspect to apply predefined settings. Different parameter types allow easy report configuration. In addition to free text input, there are special parameter types for dates and for selecting from predefined lists.

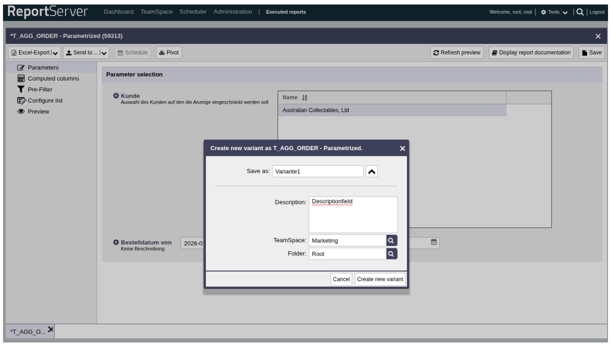


Name	Name
AV Stores, Co.	Auto Associés & Cie.
Alpha Cognac	Bavarian Collectables Imports, Co.
Amica Models & Co.	Auto-Moto Classics Inc.
Annas Decorations, Ltd	Australian Gift Network, Co
Atelier graphique	
Australian Collectables, Ltd	
Australian Collectors, Co.	
Australian Gift Network, Co	
Auto Associés & Cie.	
Auto Canal+ Petit	
Auto-Moto Classics Inc.	
Baane Mini Imports	
Bavarian Collectables Imports, Co.	
Blauer See Auto, Co.	
Boards & Toys Co.	
CAF Imports	
Cambridge Collectables Co.	
Canadian Gift Exchange Network	
Classic Gift Ideas, Inc	

All parameters can be reset to their default values via the context menu. The list parameter can be configured by double-clicking it. This opens a selection window that is also used elsewhere in ReportServer. All selectable values are shown in the left list, which can be filtered using the search field. To select a value, move it to the right area (the currently selected values) using drag-and-drop or by double-clicking.

The **Add all** button allows you to quickly select all values currently displayed. The **Remove** and **Remove all** buttons delete values that have already been selected.

The configuration you have made can be saved in the TeamSpace as a new report object. Such a report object is called a “variant”. A variant contains all settings you have made, but not the actual data; the data is reloaded each time the report is executed. All settings are also summarized in the report documentation. It thus provides a quick overview of the configuration of the variant. Please note that the report documentation always refers to the saved object; changes to a variant therefore only become visible in the report documentation after saving.



Kunde
Auswahl des Kunden auf den die Anzeige eingeschränkt werden soll

Australian Collectables, Ltd

Bestelldatum von
Keine Beschreibung
2026-0

Create new variant as T_AGG_ORDER - Parametrized.

Save as: Variante1

Description: Descriptionfield

TeamSpace: Marketing

Folder: Root

Chapter 3

TeamSpace

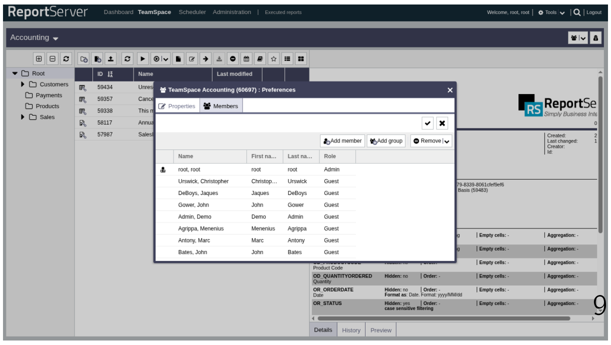
TeamSpaces allow you to use reports and evaluations together with your colleagues. Similar to a network drive, you can store the objects you use here according to your requirements or make them available to others. A simple, role-based user management allows you to organize your team independently.

3.1 Roles

Users in the TeamSpace have one of the following roles:

Guest	Have read-only access to all objects in the TeamSpace, but cannot make any changes to the structure or objects.
User	Have full access to all objects in the TeamSpace, but cannot edit the TeamSpace configuration (e.g. member management). They can create new variants, but cannot import objects.
Manager	Have all rights of a regular user, but can additionally import report objects and manage the members of the TeamSpace.
Administrator	In addition to the rights of a manager, can edit the name and description of the TeamSpace and delete the TeamSpace completely. However, this right is only available if the user also has the generic delete permission for TeamSpaces (see permissions management in the Administration Guide).

Please note that the assigned roles have no influence on which data a user can effectively view. This is controlled centrally by the system administration. As a result, it may happen that you can see a report in the TeamSpace but cannot execute it.



TeamSpace Accounting (60697) : Preferences

	Name	First na...	Last na...	Role
	root, root	root	root	Admin
	Urswick, Christopher	Christop...	Urswick	Guest
	DeBoys, Jaques	Jaques	DeBoys	Guest
	Gower, John	John	Gower	Guest
	Admin, Demo	Demo	Admin	Guest
	Agrippa, Menenius	Menenius	Agrippa	Guest
	Antony, Marc	Marc	Antony	Guest
	Bates, John	John	Bates	Guest

3.2 Working in the TeamSpace

Each user can be a member of multiple TeamSpaces. You select the active TeamSpace using the list on the right side of the TeamSpace bar.

📁	Use this button to create a new folder.
📄	A new window opens where reports can be imported.
⬆	A new window opens in which you can select the desired file and then upload it.
🔄	The double arrow refreshes the content area.
▶	If a report is selected in the content area, you can open it with this button (double-clicking the report works as well).
⊙ | ⌄	First select a report. The “Execute” button then provides additional options, e.g. executing/exporting the report in formats such as Excel, CSV, Template, HTML, and many more.
📄	Generates a test document for the report.
✎	Rename the selected item.
➔	Opens a new window where you can change the TeamSpace of the selected item.
⊖	Remove the selected item.
📅	If a report is selected in the content area, you can open the scheduler directly.
📖	Downloads the report documentation.
☆	Marks the selected item in the content area as a favorite. Favorites can then be displayed on the dashboard.
▦ ☰	Switches the overview display in the content area depending on whether tile view or list view is selected.

The TeamSpace view is similar to that of a file manager, as you may know it from Microsoft

Windows. On the left side you find the explorer, which is collapsed by default and allows you to quickly switch between different folders.

The currently opened folder is displayed in the content area. Using the view buttons, you can control the level of detail and the arrangement of the content area. The toolbar of the content area contains buttons for the functions listed above.

On the right side, detailed information about the selected object is displayed. You can switch between different pages using the tabs.

You can move objects to other folders via drag-and-drop, both within the content area and in the explorer.

Right-click an object to open the context menu. Here you can rename the object or remove it from the TeamSpace. For report objects, you can also use the **Execute** option to export the report directly in the desired format.

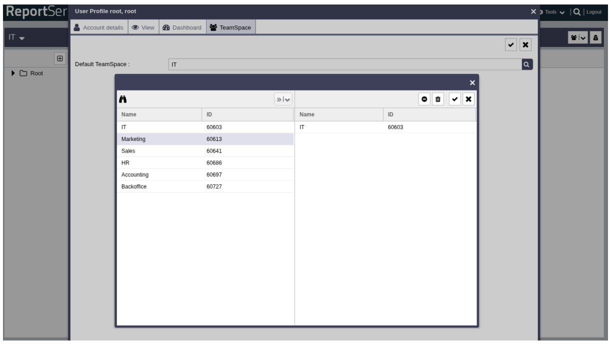
3.3 Objects in the TeamSpace

The following icons represent the different object types that can occur in the TeamSpace. The icons for report objects may additionally be shown with an overlaid chain symbol, which indicates a report reference. Further information on ***report references*** can be found in Section Importing Reports.

📂	A folder. Folders structure the various object types in the TeamSpace.
▦	A Dynamic List.
🖼	A graphical report "Birt".
X	A graphical report "JXLS".
📰	A graphical report "Jasper".
⬢	A graphical report "Saiku".
✎	A graphical report "Grid Editor".
</>	Created scripts.
📄	Executed reports saved in the TeamSpace are shown with the icon that belongs to the respective file type, e.g. a PDF icon as shown here. Further information on saving executed reports in the TeamSpace can be found in the chapter on Scheduling.

3.4 Configuration

Using the **Administration** button you can access the TeamSpace settings. Here you can edit the name and description of the TeamSpace and define the members and their roles. If you have the required permissions, the administration menu also contains options to **Delete** the active TeamSpace or to **Create** new TeamSpaces.



Default TeamSpace : IT

Name	ID
IT	60603
Marketing	60613
Sales	60641
HR	60686
Accounting	60697
Backoffice	60727

Name	ID
IT	60603

The setting that determines which TeamSpace is loaded automatically at startup can be found in your user profile. You can access the user profile by clicking your name in the module bar.

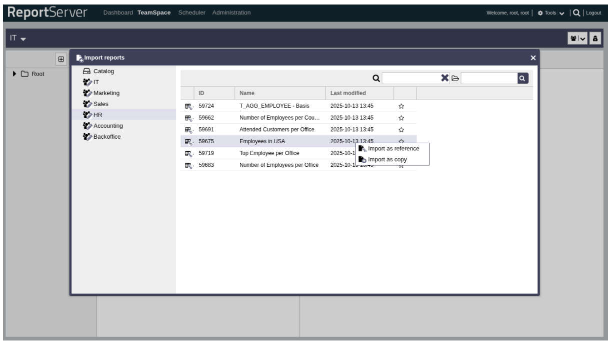
3.6 Importing Reports

If you hold the role of a Manager or Administrator in a TeamSpace, you can import any report or variant you have access to. Reports and variants within a TeamSpace are generally visible to all users of that TeamSpace; whether a report can actually be executed depends on the specific permissions of the individual user. The **Import report** dialog provides all report objects you have access to for selection. In addition to reports from your TeamSpaces, these may also be objects from a global catalog.

There are two basic ways to import an object into a TeamSpace:

Import as copy: The source object is duplicated and an independent report object is created in the target TeamSpace. Changes to the source object have no effect on your copy.

Import as reference: When importing as a reference, the object is not duplicated. Instead, a link to the imported object is created. Changes to the source object will always affect your reference as well. You cannot make changes directly to the reference. However, variants derived from the reference can be saved under a new name and are then independent of the source object.



ID	Name	Last modified
59724	T_AGG_EMPLOYEE - Basis	2025-10-13 13:45
59662	Number of Employees per Cou...	2025-10-13 13:45
59691	Attended Customers per Office	2025-10-13 13:45
59675	Employees in USA	2025-10-13 13:45
59719	Top Employee per Office	2025-10-1
59683	Number of Employees per Office	2025-10-1

Changes to a referenced object therefore affect all references equally. If you delete a reference, only the link is removed. As long as other links exist, the actual report object remains.

Importing from the catalog is always done as a reference.

Chapter 4

Reports

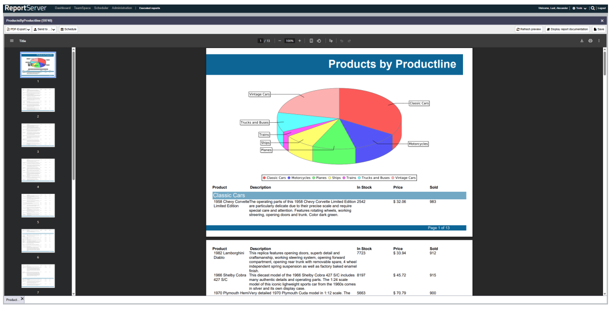
In the following chapter, we would like to familiarize you with the basic tools for daily work with reports. ReportServer supports different report types, each serving a different purpose. Depending on the report type, different configuration options are available. What all report types have in common is that they can be configured using parameters predefined by report developers. We discuss working with parameters in Section 4.2. Further configuration options for individual report types are covered separately in later chapters.

4.1 Report Formats

ReportServer supports a wide variety of report formats, which we classify into different groups (report types) according to their typical use cases. Depending on the report type, different interaction options are available; we will discuss these in more detail in the following sections and chapters. At this point, we briefly introduce the different report types. A detailed discussion of the report formats supported by ReportServer (e.g. ReportServer supports various report formats for integrating so-called graphical reports[1]) follows later.

Graphical Reports

Graphical reports summarize report formats that were developed for creating visually sophisticated evaluations. Graphical reports are typically designed by report developers using specialized tools. Developing and making changes is therefore usually time-consuming. Graphical reports are generally finished evaluations that are not intended for further processing. In ReportServer, graphical reports can usually be configured only via a small number of parameters (we discuss parameters in Section 4.2) and are usually exported to PDF.



Products by Productline

Product	Description	In Stock	Price	Sold
Classic Cars				
1958 Chevy Corvette Limited Edition	The operating parts of this 1958 Chevy Corvette Limited Edition are particularly delicate due to their precise scale and require special care and attention. Features rotating wheels, working streering, opening doors and trunk. Color dark green.	2542	$ 32.06	983

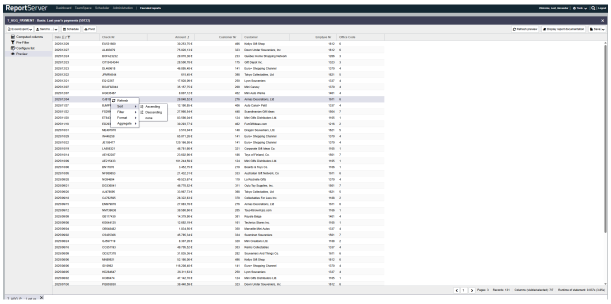
Page 1 of 13

Product	Description	In Stock	Price	Sold
1982 Lamborghini Diablo	This replica features opening doors, superb detail and craftsmanship, working steering system, opening forward compartment, opening rear trunk with removable spare, 4 wheel independent spring suspension as well as factory baked enamel finish.	7723	$ 33.94	912
1966 Shelby Cobra 427 S/C	This diecast model of the 1966 Shelby Cobra 427 S/C includes many authentic details and operating parts. The 1:24 scale model of this iconic lightweight sports car from the 1960s comes in silver and its own display case.	8197	$ 45.72	915
1970 Plymouth Hemi	Very detailed 1970 Plymouth Cuda model in 1:12 scale. The	5663	$ 70.79	900

[1] We count Jasper, Eclipse Birt, and Crystal Reports among the so-called graphical report engines, which primarily serve the development of pixel-perfect reports. Further information on the individual report engines can be found in the Administration Guide.

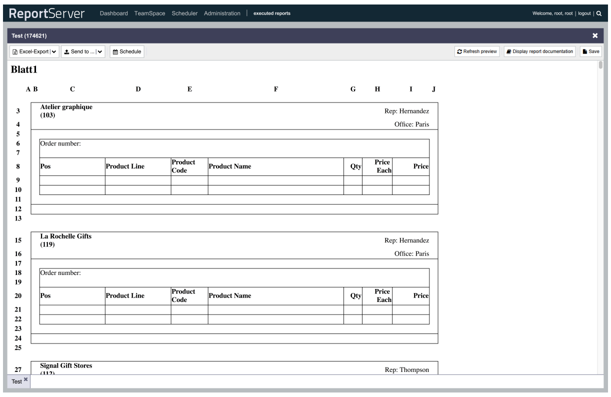
Dynamic List

In contrast to graphical reports, the Dynamic List is a report format that gives you, as an end user, full flexibility regarding the type of evaluation to be performed. You can decide which data to include and whether further processing is required. Exports of your evaluations can be generated, among others, as Excel or PDF. The Dynamic List offers extensive filtering and formatting options and can export data directly into Excel, Word, or text documents using so-called templates. In addition, the Dynamic List provides an analysis mode (pivot) that allows data sets to be prepared in a wide variety of ways. These preparations can, for example, be exported as cross-tabs or charts.



With its wide range of configuration options, the Dynamic List is the ideal tool for daily work. The many export options (Excel, PDF, CSV, XML, . . .) also make it possible to prepare data for further processing by other systems. The various configuration options of the Dynamic List are explained in detail in Chapter 6.

Excel Template Reports



Atelier graphique (103) — Rep: Hernandez — Office: Paris

Order number:

Pos	Product Line	Product Code	Product Name	Qty	Price Each	Price

La Rochelle Gifts (119) — Rep: Hernandez — Office: Paris

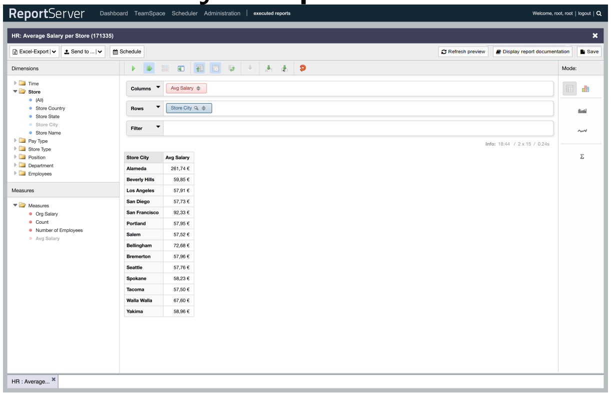
Order number:

Pos	Product Line	Product Code	Product Name	Qty	Price Each	Price

Signal Gift Stores (112) — Rep: Thompson

With JXLS, ReportServer provides a report language based on Microsoft Excel. In terms of configuration options, JXLS reports are, from your perspective as a user, most comparable to graphical reports. Configuration options are predefined by report developers via parameters. The export is then generated as an Excel worksheet.

OLAP – Analysis Reports



Columns: Avg Salary

Rows: Store City

Filter:

Info: 18:44 / 2 x 15 / 0.24s

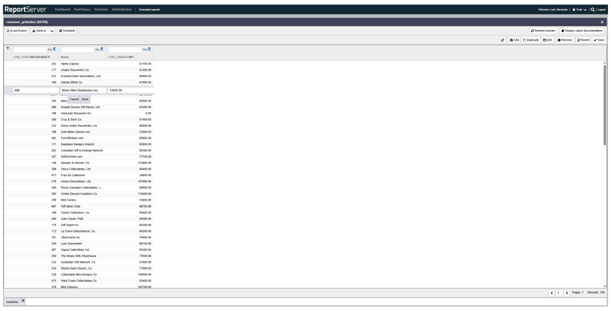
Store City	Avg Salary
Alameda	261,74 €
Beverly Hills	59,85 €
Los Angeles	57,91 €
San Diego	57,73 €
San Francisco	92,33 €
Portland	57,95 €
Salem	57,52 €
Bellingham	72,68 €
Bremerton	57,96 €
Seattle	57,76 €
Spokane	58,23 €
Tacoma	57,50 €
Walla Walla	67,60 €
Yakima	58,96 €

OLAP (Online Analytical Processing) is often used synonymously for analyzing multidimensional data. ReportServer supports the Mondrian report language for defining so-called multidimensional analysis spaces (cubes), which offer very flexible analysis capabilities for experienced users.

We discuss OLAP reports in Chapter 8.

Data-Processing Report Formats

The report formats described so far are used for analyzing data. In addition, ReportServer provides formats that can be used to manage data (e.g. to control processes).



CUS_CUSTOMERNUMBER	Name	CUS_CREDITLIMIT
242	Alpha Cognac	61100.00
177	Osaka Souveniers Co.	81200.00
412	Extreme Desk Decorations, Ltd	86800.00
166	Handji Gifts& Co	97900.00
486	Motor Mint Distributors Inc.	72600.00
350	Mars	65000.00
489	Double Decker Gift Stores, Ltd	43300.00
168	American Souvenirs Inc	0.00
385	Cruz & Sons Co.	81500.00
323	Down Under Souveniers, Inc	88000.00
198	Auto-Moto Classics Inc.	23000.00
462	FunGiftIdeas.com	85800.00
171	Daedalus Designs Imports	82900.00
202	Canadian Gift Exchange Network	90300.00
357	GiftsForHim.com	77700.00
146	Saveley & Henriot, Co.	123900.00
398	Tokyo Collectables, Ltd	94400.00
473	Frau da Collezione	34800.00
276	Anna's Decorations, Ltd	107800.00
260	Royal Canadian Collectables, L...	89600.00
363	Online Diecast Creations Co.	114200.00
209	Mini Caravy	53800.00
447	Gift Ideas Corp.	49700.00
189	Clover Collections, Co.	69400.00
406	Auto Canal+ Petit	95000.00
175	Gift Depot Inc.	84300.00
172	La Corne Dabondance, Co.	84300.00
181	Vitachrome Inc.	76400.00
250	Lyon Souveniers	68100.00
487	Signal Collectibles Ltd.	60300.00
450	The Sharp Gifts Warehouse	77600.00
333	Australian Gift Network, Co	51600.00
324	Stylish Desk Decors, Co.	77000.00
239	Collectable Mini Designs Co.	105000.00
475	West Coast Collectables Co.	55400.00
319	Mini Classics	102700.00

4.2 Configuring and Executing Reports

When you open a report via the TeamSpace, you enter the so-called ***report execution mode***. This mode allows you to configure the selected report and export it in different formats. You can also automate exports and have the report sent to you by email via scheduling, e.g. daily or weekly at a specific time. In the following, we explain how report execution mode works, which is common to the various report types.

Report execution mode is essentially divided into four areas. At the top, a toolbar provides access to the following functions:

Export	Allows exporting to different formats. The available formats are determined by the report type.
Send to	Allows you to execute the report and send the result by email or save it in the TeamSpace.
Schedule	Using Schedule, reports can be executed on a time-controlled basis (e.g. every third Monday of a month).
Pivot	Activates pivot mode (e.g., in dynamic lists).
Display report documentation	Shows the documentation associated with the report.
Save	Allows you to save a variant of the report. All configuration changes made are saved.

At the bottom of the screen you will find a tab for each open report. If you have multiple reports open at the same time, these tabs allow you to quickly switch between them and close individual reports.

The main view is usually divided into two areas. On the left side you will find the available aspects. In the center you see the corresponding view. Each report type has at least the **Preview** aspect. Further aspects, such as Parameters, allow you to make settings for the report. If only the Preview aspect is available, the left bar is hidden.

Parameters

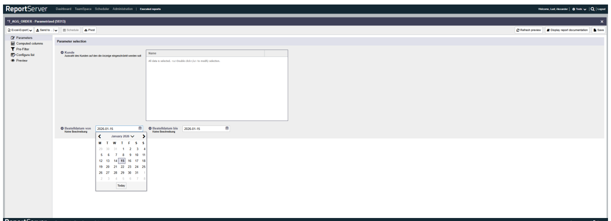
Report developers can provide reports with parameters that allow the report to be configured further before execution. If a report has parameters, you will see the **Parameters** aspect on the left in report mode. Select it to configure the available parameters. The layout of the parameters page may differ in detail depending on the report. In general, however, it consists of a set of input fields and possibly additional explanatory text.

Parameters can be prefilled with default values. To reset a value to its default, right-click the input field and select **Set default value** from the context menu. The following parameter types may occur in reports:

Text Parameters

The simplest parameter type is the ***text parameter***. It provides a text input field for setting the parameter value. Depending on the configuration, the field may be required to follow a specific format (e.g. minimum and maximum length, or digits only). If the input does not match the required format, the field is highlighted and an appropriate error message is displayed.

Date Parameters



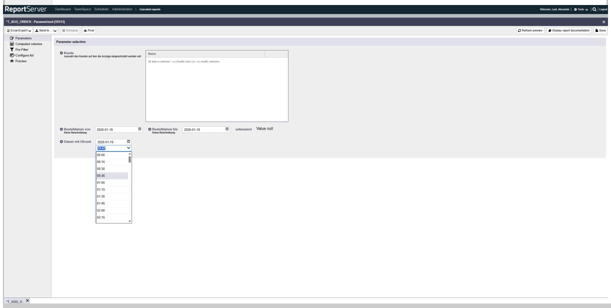
Kunde
Auswahl des Kunden auf den die Anzeige eingeschränkt werden soll

All data is selected. <u>Double click</u> to modify selection.

Bestelldatum von: 2026-01-15
Keine Beschreibung

Bestelldatum bis: 2026-01-15
Keine Beschreibung

The date parameter allows you to select a date. To select the date, click the icon to the right of the input field. A calendar opens, allowing you to conveniently select the date.



Kunde
Auswahl des Kunden auf den die Anzeige eingeschränkt werden soll

All data is selected. <u>Double click</u> to modify selection.

Bestelldatum von: 2026-01-19
Keine Beschreibung

Bestelldatum bis: 2026-01-19
Keine Beschreibung

unbenannt: Value null

Datum mit Uhrzeit: 2026-01-19 19:41

If the parameter additionally supports a time (date/time), a separate selection list for the time is shown below the date field. You can then select the time via a dropdown list.

Tipp. Instead of a fixed date, you can also enter a date relative to the current day. To do this, switch the parameter to formula mode via the right mouse button. You can then enter a formula expression based on the "today" object. For example, `${today}` references the current date, and `${today.firstDay()}` denotes the first day of the current month. Further information on formula expressions and the ***today*** object can be found in Appendix B.

Selection Lists

Selection lists allow you to select one or more values from a predefined list. Selection lists can be displayed in different ways:

Dropdown — Allows you to select a single value from a drop-down list. If you do not explicitly select a value, the first entry in the list is used.

Radio buttons — Radio buttons also allow selection of a single value. However, all available values are visible directly.

Multiple selection — A list of all selected values is displayed. To change the selection, double-click in the list. A window opens where the possible values are shown on the left and the currently selected values on the right. To select values, drag them from left to right. To save the selection, click **Apply**.
Please note that an empty selection is interpreted as **all data is selected**. This differs from manually selecting all available values. If the data basis changes, an empty selection will automatically include new values; if you manually selected all values, the selection remains exactly as it is, and newly added or changed values are not included.

Checkboxes — Another view for selecting multiple values.

Special Parameters

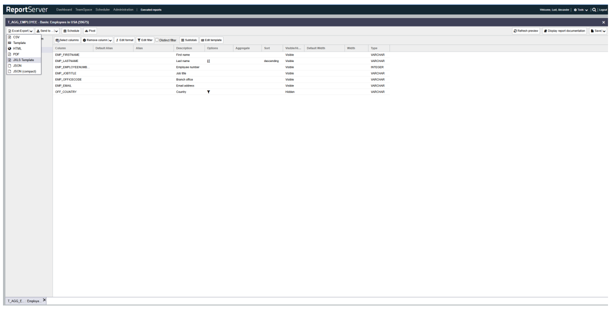
Special parameters are individually programmed parameters that implement specific requirements. Examples include selecting an area on a map or selecting values with search. If a configuration option is available that does not correspond to any of the parameter types described above, it is such a special parameter. In this case, your report developer will tell you how to use it.

Preview

The Preview aspect shows a detailed preview of the report with the current configuration. Note that generating the preview executes the report with current data and may take a few moments depending on the report.

Execution / Export

Once a report has been fully configured, you can execute it. This means the report is filled with current data from the data warehouse and converted into the desired target format. Which formats are available depends on the report type. Graphical reports are usually exported to PDF, as this guarantees pixel-perfect rendering and is well suited for printing. Dynamic Lists, on the other hand, are usually exported as an Excel worksheet.



Column	Default Alias	Alias	Description	Options	Aggregate	Sort	Visible/Hi...	Default Width	Width	Type
EMP_FIRSTNAME			First name				Visible			VARCHAR
EMP_LASTNAME			Last name	⇅		descending	Visible			VARCHAR
EMP_EMPLOYEENUMB...			Employee number				Visible			INTEGER
EMP_JOBTITLE			Job title				Visible			VARCHAR
EMP_OFFICECODE			Branch office				Visible			VARCHAR
EMP_EMAIL			Email address				Visible			VARCHAR
OFF_COUNTRY			Country	▼			Hidden			VARCHAR

To execute/export a report, select the entry for the desired format from the toolbar at the top left. Depending on the format, additional settings may be available. The finished report is then offered for download.

Saving Variants

All configuration settings made for a report (e.g. set parameters) can be saved in report variants. Note that only configuration settings are saved, not the current report data; the data is loaded again each time the report is executed. To save a variant, select the **Save** button in the toolbar. You can then enter a name and an additional description for the variant. The variant is stored in the TeamSpace in the same folder as the report that was opened previously. If you are already working on a variant, you can either update the current variant ("**Save**") or create a new variant ("**Save as**").

Report Documentation

All settings stored in a variant are clearly summarized in the report documentation. This ensures that even individual evaluations are always traceable and audit-proof.

Schedules

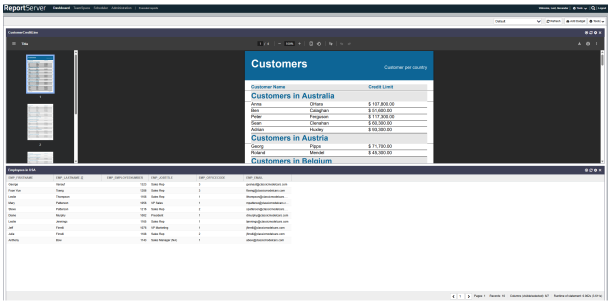
Saved variants can be scheduled and executed automatically at defined times and, for example, sent by email. Select the **Schedule** option from the toolbar. Further information on scheduling and managing scheduled reports can be found in Chapter 9 on page 57.

Chapter 5

Dashboard

After logging in, ReportServer starts in the dashboard module. Here you can create individual information pages, so-called dashboards, to get a quick overview of important data and reports. In contrast to the TeamSpace, the dashboard is a private area that can be designed only by you.

The Dashboard module is structured similarly to other modules. At the top you will find a global toolbar. The available dashboards are listed on the left, and the currently selected dashboard is shown in the center. If you have not created a dashboard yet, you will see the empty **Default** dashboard. Using the **Tools** menu in the toolbar, you can manage dashboards. The following options are available:



Customers

Customer per country

Customer Name		Credit Limit
Customers in Australia		
Anna	OHara	$ 107,800.00
Ben	Calaghan	$ 51,600.00
Peter	Ferguson	$ 117,300.00
Sean	Clenahan	$ 60,300.00
Adrian	Huxley	$ 93,300.00
Customers in Austria		
Georg	Pipps	$ 71,700.00
Roland	Mendel	$ 45,300.00
Customers in Belgium		

Employees in USA

EMP_FIRSTNAME	EMP_LASTNAME	EMP_EMPLOYEENUMBER	EMP_JOBTITLE	EMP_OFFICECODE	EMP_EMAIL
George	Vanauf	1323	Sales Rep	3	gvanauf@classicmodelcars.com
Foon Yue	Tseng	1286	Sales Rep	3	ftseng@classicmodelcars.com
Leslie	Thompson	1166	Sales Rep	1	lthompson@classicmodelcars....
Mary	Patterson	1056	VP Sales	1	mpatterso@classicmodelcars.c...
Steve	Patterson	1216	Sales Rep	2	spatterson@classicmodelcars....
Diane	Murphy	1002	President	1	dmurphy@classicmodelcars.com
Leslie	Jennings	1165	Sales Rep	1	ljennings@classicmodelcars.com
Jeff	Firrelli	1076	VP Marketing	1	jfirrelli@classicmodelcars.com
Julie	Firrelli	1188	Sales Rep	2	jfirrelli@classicmodelcars.com
Anthony	Bow	1143	Sales Manager (NA)	1	abow@classicmodelcars.com

Edit dashboard
: Allows you to rename the dashboard, set a description, and choose the layout. The layout determines how components (so-called dadgets) are arranged on the dashboard. You can choose between a one-column layout, various two-column layouts, and a three-column layout.

Edit order
: Allows you to change the order of the dashboards.

New dashboard
: Creates a new dashboard.

Import dashboard
: Administrators can provide predefined dashboards for you. Using **Import dashboard** you can add such a dashboard to your account. Please note that imported dashboards cannot be modified.

Remove dashboard
: Deletes the currently active dashboard.

To place a new component (a so-called dadget) on the current dashboard, select **New dadget** from the toolbar. The following dadgets are available:

Bookmarks	A dadget that displays objects marked in the TeamSpace for quick access.
Library dadget	Allows you to embed predefined dadgets.
Parameter dadget	Allows you to set parameters for each report dadget on the current dashboard.
Report dadget	Displays a report on the dashboard.
Static HTML dadget	Allows experts to create custom content using HTML and JavaScript.
URL dadget	Allows you to embed arbitrary websites in the dashboard.

Dadgets always consist of a single window in which the associated information is displayed. You can move dadgets on the dashboard using drag-and-drop (via the window title bar). Using the icons at the top of the dadget window, you can reload the dadget, edit its configuration, or remove the dadget.

In the following, we take a closer look at the individual dadgets.

Bookmarks

Bookmarks allow quick access to your most important reports. To add an object to your bookmarks, select it in the TeamSpace and choose **Mark as bookmark** from the context menu (right mouse button). The object is then listed in the Bookmarks dadget. To jump directly to the TeamSpace, simply double-click the object in the Bookmarks dadget.

Library Dadgets

Administrators can provide you with fully configured dadgets. Using the Library dadget, you can embed these in your dashboard. In the configuration of the Library dadget, you can choose from the dadgets that have been enabled for you.

Parameter Dadgets

The Parameter dadget collects all parameters of all report dadgets that are currently placed on the dashboard and displays them together. If two reports use the same parameter—for example, if both reports allow setting the “year”—this parameter is shown only once.

The Report Dadget

The Report dadget allows you to embed arbitrary reports in the dashboard. For configuration, first select the report to be displayed and then choose the desired view. When selecting the report, you can choose reports from one of your TeamSpaces or, provided you have the required permissions, from the global catalog.

Depending on the report type, different views are available. For example, you can usually choose between the normal preview or an HTML export as the display. For analysis reports or Dynamic Lists in pivot mode, you can additionally choose a chart view.

HTML Dadget

For experts, the HTML dadget allows direct programming of a dadget using HTML and JavaScript.

The URL Dadget

With the URL dadget you can embed any website in your dashboard. This is particularly useful to include information from other systems, e.g. a local intranet. For configuration, simply enter the corresponding URL. Please note that you must include the protocol in the URL, i.e. write `https://www.example.com/` instead of `www.example.com`.

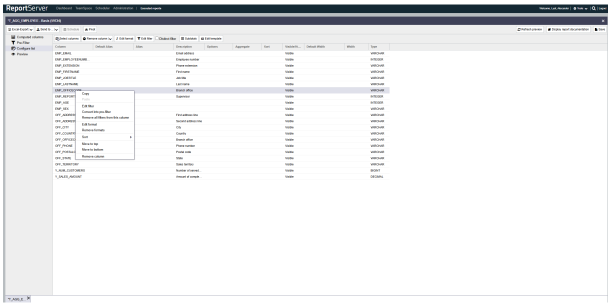
Chapter 6

Dynamic Lists

The Dynamic List is ReportServer's tool of choice when it comes to fast, user-specific reports/analyses, or when the focus is on subsequent processing of the data.

From simple data selection using column selection and filters, through sorting, grouping, or subtotals, up to complex analytical functions, the Dynamic List can cover almost any reporting requirement.

Once specified, you can store your report as a so called variant and share it with your coworkers via a TeamSpace. When you open a Dynamic List for execution, you are taken to the report area, where you can configure the evaluation and finally execute it.

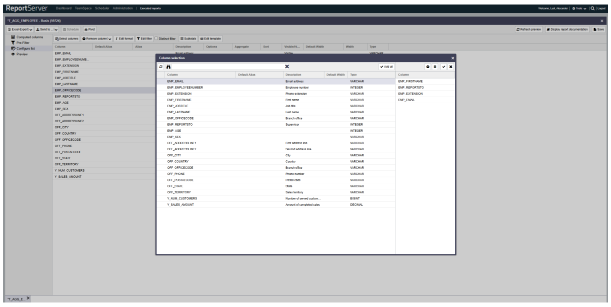


Column	Default Alias	Alias	Description	Options	Aggregate	Sort	Visible/Hi...	Default Width	Width	Type
EMP_EMAIL			Email address				Visible			VARCHAR
EMP_EMPLOYEENUMB...			Employee number				Visible			INTEGER
EMP_EXTENSION			Phone extension				Visible			VARCHAR
EMP_FIRSTNAME			First name				Visible			VARCHAR
EMP_JOBTITLE			Job title				Visible			VARCHAR
EMP_LASTNAME			Last name				Visible			VARCHAR
EMP_OFFICECODE			Branch office				Visible			VARCHAR
EMP_REPORT			Supervisor				Visible			INTEGER
EMP_AGE							Visible			INTEGER
EMP_SEX							Visible			VARCHAR
OFF_ADDRESS			First address line				Visible			VARCHAR
OFF_ADDRESS			Second address line				Visible			VARCHAR
OFF_CITY			City				Visible			VARCHAR
OFF_COUNTRY			Country				Visible			VARCHAR
OFF_OFFICEC			Branch office				Visible			VARCHAR
OFF_PHONE			Phone number				Visible			VARCHAR
OFF_POSTALC			Postal code				Visible			VARCHAR
OFF_STATE			State				Visible			VARCHAR
OFF_TERRITORY			Sales territory				Visible			VARCHAR
Y_NUM_CUSTOMERS			Number of served...				Visible			BIGINT
Y_SALES_AMOUNT			Amount of comple...				Visible			DECIMAL

The basis of every Dynamic List is a source table provided by an administrator. This table is typically very comprehensive and can easily contain hundreds of columns and several million rows. To derive information from this data, it is necessary to select the data to be considered. For this purpose, ReportServer provides a variety of tools that allow even complex selection conditions to be formulated intuitively.

6.1 Column Selection

The first step when creating a new Dynamic List is selecting the columns to be used. You can access column selection via the toolbar of the **List configuration** aspect. This opens the well-known selection dialog (see Chapter **??**). The dialog lists all available columns for selection.



Column	Default Alias	Description	Default Width	Type
EMP_EMAIL		Email address		VARCHAR
EMP_EMPLOYEENUMBER		Employee number		INTEGER
EMP_EXTENSION		Phone extension		VARCHAR
EMP_FIRSTNAME		First name		VARCHAR
EMP_JOBTITLE		Job title		VARCHAR
EMP_LASTNAME		Last name		VARCHAR
EMP_OFFICECODE		Branch office		VARCHAR
EMP_REPORTSTO		Supervisor		INTEGER
EMP_AGE				INTEGER
EMP_SEX				VARCHAR
OFF_ADDRESSLINE1		First address line		VARCHAR
OFF_ADDRESSLINE2		Second address line		VARCHAR
OFF_CITY		City		VARCHAR
OFF_COUNTRY		Country		VARCHAR
OFF_OFFICECODE		Branch office		VARCHAR
OFF_PHONE		Phone number		VARCHAR
OFF_POSTALCODE		Postal code		VARCHAR
OFF_STATE		State		VARCHAR
OFF_TERRITORY		Sales territory		VARCHAR
Y_NUM_CUSTOMERS		Number of served custom...		BIGINT
Y_SALES_AMOUNT		Amount of completed sales		DECIMAL

Column
EMP_FIRSTNAME
EMP_REPORTSTO
EMP_EXTENSION
EMP_EMAIL

The selected columns are transferred to the **List configuration** aspect.

For each selected column, the following information is displayed:

Column	The technical name of the column.
Default column name	A possibly predefined plain-text name.
Column name	Here you can assign your own name/alias for the column.
Description	If available, contains an explanation of the meaning of the column.
Options	Indicates the applied configuration via icons.
Aggregation	Allows aggregation on this column; see Section Aggregation on page 31.
Sorting	Allows sorting the data by this column.
Hidden	Using the **Hidden** option, the column can be hidden.
Type	Specifies the underlying data type.

6.2 Data Types

Each column in a database is assigned a fixed data type, which determines the type of content possible in that column. There are different data types, e.g. for text, numbers, and dates. Common data types include:

VARCHAR	Text with a fixed maximum length
INTEGER	An integer
DOUBLE/FLOAT	A floating-point number
DECIMAL	A decimal number
CLOB/BLOB	Arbitrarily long text / binary data
DATE	A date, possibly including time

The order of the columns in the final report corresponds to the order of the columns in the list configuration. You can change the order via drag-and-drop or via the context menu.

To retrieve the data returned by the report in the current configuration, switch to the Preview aspect. In the preview, the first 50 rows of your configured list are displayed. The preview toolbar (at the bottom) shows information about the selected data. This includes, in addition to the total number of available records, information on column selection and runtime. The runtime is split into pure server time and the duration of the entire request. Use the **Next** and **Back** buttons to page through the result.

Double-clicking a row opens the selected record in a new window for a detailed view. For quick configuration adjustments, many functions of the List configuration aspect are also available via the context menu of a data cell.

6.3 Aliases, Sorting, and Hidden Columns

To change the name of a column, you can assign an ***alias*** in the list configuration. To do this, click the corresponding cell under Column name and enter a new name.

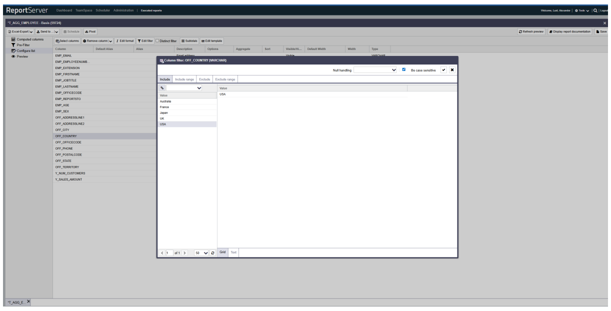
Depending on the configuration, a suggested name may be stored for a column. If available, it is shown in the **Default column name** column. If you set your own column name, it overrides the default.

You can set the sorting of records in the final report under **Sorting** for each column. If multiple columns are configured for sorting, the sorting priority follows the order of the columns.

In the **Hidden** column you can exclude individual columns from display. This is useful if you want to use a column for filtering or sorting but do not want it to appear in the output.

6.4 Filters

Filters allow you to restrict the report data at the row level by defining inclusion and exclusion criteria per column. This section covers the basics of filtering. More advanced options, such as filtering with placeholders or formula expressions, are introduced later in this chapter. To define a filter condition on a column, select it in the List configuration aspect and open the filter dialog by double-clicking or via the corresponding toolbar button.



Starting from the base data set, you have two basic options for selecting the records to be considered.

i) Select the subset to include:
These records are included in the final report (inclusion)

ii) Select the subset to ignore:
All records except the selected ones are included in the final report (exclusion)

If you define both inclusion and exclusion filters, the exclusion no longer applies to the full base set, but to the set selected by inclusion. In particular: if you explicitly both include and exclude a single value, it will not be part of the result set.

The filter dialog allows you to define inclusion and exclusion filters both based on individual values and on value ranges. Use the corresponding tabs.

The structure of the individual tabs is essentially the same and resembles the familiar selection dialog. On the left side you find the column values based on the currently configured base set, which may already be restricted by other filters (both on the current column and on other columns).

As in the selection dialog, values can be transferred to the selection via double-click or drag-and-drop. For inclusion/exclusion of ranges, two consecutive selections are combined into a range (from A to B).

Alternatively, instead of selecting values, you can switch the view from Grid to Text and enter values directly, or paste them from the clipboard (copy & paste).

In text mode, ranges are entered as “A - B”. Note the spaces before and after the hyphen. By omitting one of the range bounds you can define an open interval. The range definition “all values greater than 5” would be written as “5 - ”.

To load all values occurring in the column regardless of already configured restrictions, click the **chain icon** (enforce consistency) next to the search field. (You will usually not need this functionality.) It allows you to define filters that would produce an empty result with the current data basis, but may still be meaningful if the underlying data changes.

By default, filtering is case-sensitive, i.e. the value in the data must be written exactly as your filter expression. If desired, you can disable this via the **Case sensitive** option. Note that ignoring case can negatively impact performance of the resulting query.

Empty Cells (NULL)

A special characteristic of databases you should be aware of when filtering is the handling of empty cells. By an empty cell we mean a cell in which no value is present (in database jargon: the value is NULL). NULL is in particular different from an empty string “” or the number 0.

Due to the property that NULL is different from every value, all cells with the value NULL are excluded as soon as you define any filter. Especially if only an exclusion filter is defined, this may seem counterintuitive, but it is common in relational algebra—the basis of all common database systems—and is therefore implemented in ReportServer accordingly.

This means: if you have defined filters on a column and empty cells should also be included in the result set, you must explicitly include the empty cells. Conversely, explicitly excluding empty cells is only necessary if you otherwise have not defined any filters on this column. You control the handling of empty cells via the corresponding **drop-down box**.

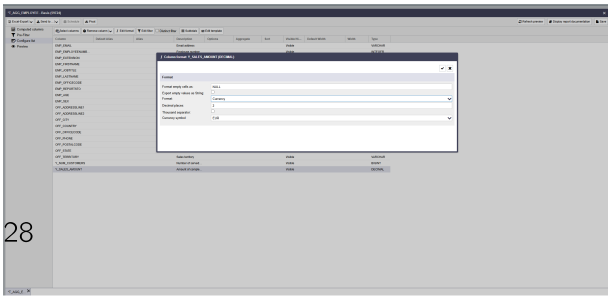
Filtering Floating-Point Numbers (Float/Double)

Please note that due to the definition of floating-point numbers, equality checks are only possible to a limited extent. When filtering columns of type Float or Double, you should therefore preferably use range filters. Instead of including the value 5.1, use for example a range filter 5.0009 - 5.1001.

Distinct: Remove Duplicate Rows from the Output

Using the option **Remove duplicate rows from output** in the List configuration aspect, you can suppress the display of duplicate records in the result set. A row is considered duplicate if it is identical to another row in all visible columns.

6.5 Format



Column	Default Alias	Alias	Description	Options	Aggregate	Sort	Visible/Hi...	Default Width	Width	Type
EMP_EMAIL			Email address				Visible			VARCHAR
EMP_EMPLOYEENUMB...			Employee number				Visible			INTEGER
EMP_EXTENSION										
EMP_FIRSTNAME										
EMP_JOBTITLE										
EMP_LASTNAME										
EMP_OFFICECODE										
EMP_REPORTSTO										
EMP_AGE										
EMP_SEX										
OFF_ADDRESSLINE1										
OFF_ADDRESSLINE2										
OFF_CITY										
OFF_COUNTRY										
OFF_OFFICECODE										
OFF_PHONE										
OFF_POSTALCODE										
OFF_STATE										
OFF_TERRITORY			Sales territory				Visible			VARCHAR
Y_NUM_CUSTOMERS			Number of served...				Visible			BIGINT
Y_SALES_AMOUNT			Amount of comple...				Visible			DECIMAL

Column format: Y_SALES_AMOUNT (DECIMAL)

Format

Format empty cells as: NULL
Export empty values as String: □
Format: Currency
Decimal places: 2
Thousand separator: □
Currency symbol: EUR

ReportServer allows you to set the desired output format for each column directly in the list configuration. Select the desired column(s) and click the Column format button.

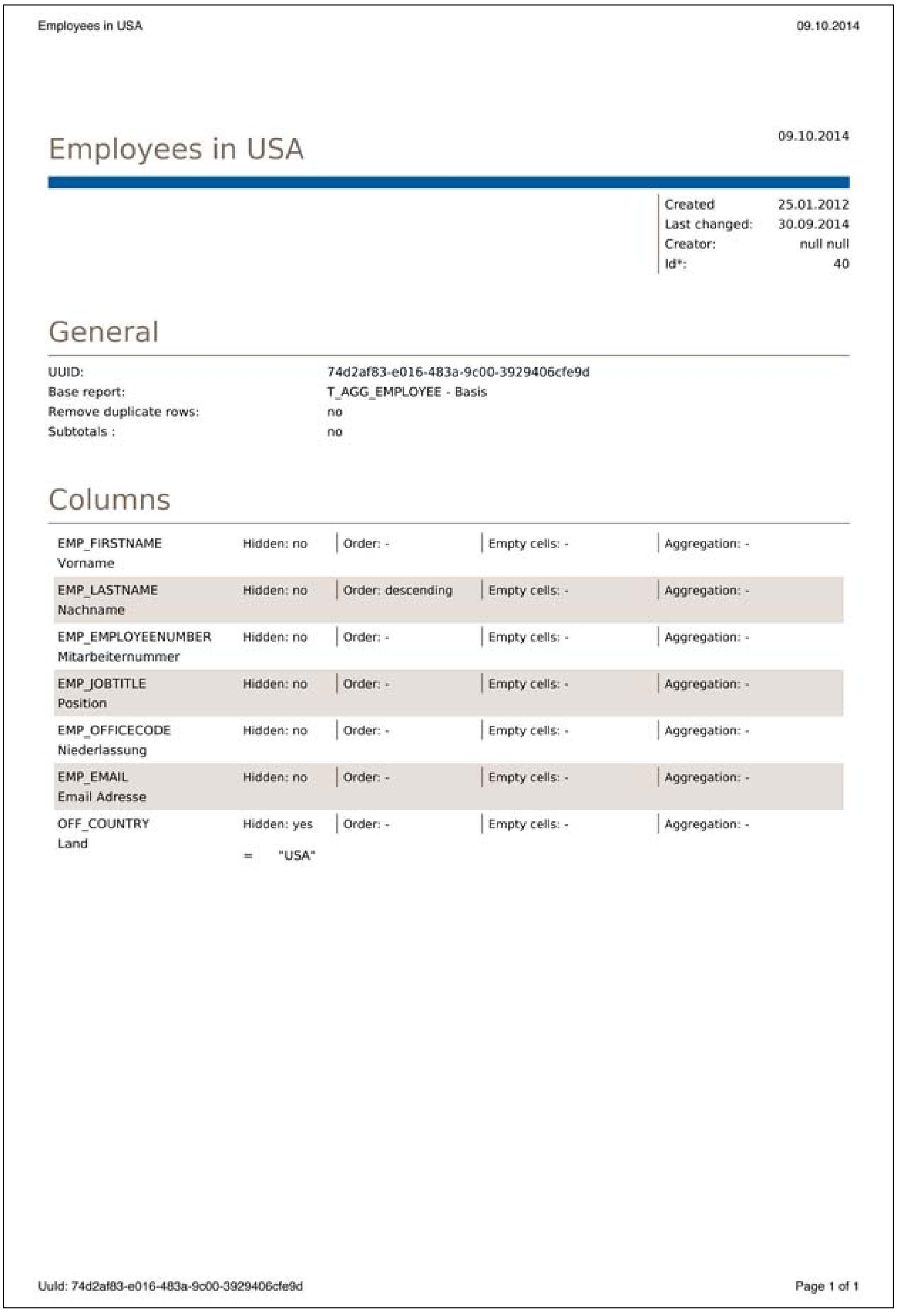
In the dialog that opens, you can specify the column format to be used.

Depending on the column's data type, the following formatting options are available:

Number	The value is interpreted as a number and output with the configured number of decimal places. Optionally, a thousands separator can be configured.
Percent	The cell value is interpreted as a percentage.
Scientific	Numbers are output in exponential notation if applicable.
Currency	The value is interpreted as a number and extended by the selected currency symbol.
Date	The value is interpreted as a date and output in the specified target format. If the underlying column type is not a date type, the base format in which the values are stored in the database must additionally be specified. Using the options Clean invalid dates and Replace invalid dates, you can define how to handle database values that do not represent a valid date, e.g. 35.03.2012 or "Last Tuesday". Clean invalid dates would compute 04.04.2012 in the first case; in the second case, no correction is possible. Using Replace invalid dates, you can specify an alternative value. You can also provide a ${}-formula expression (see Chapter Formula Language on page 63) using the replacement "value" for the actual existing value. For the definition of target and base formats, refer to the ***Date format*** table in Appendix C.
Text	The value is interpreted as text—this preserves, for example, leading zeros.
Template	Allows specifying a ${}-formula expression that controls formatting (see Chapter Formula Language on page 63). The replacement "value" contains the existing value.

6.6 Report Documentation

Using the **Display report documentation** button, you open the report documentation. It summarizes all settings made in a clear form. Note that the report documentation always refers to the last saved version of the variant. Figure 6.1 shows an example report documentation. For further information, also see Section Report Documentation on page 61.



Employees in USA 09.10.2014

Employees in USA

09.10.2014

Created	25.01.2012
Last changed:	30.09.2014
Creator:	null null
Id*:	40

General

UUID:	74d2af83-e016-483a-9c00-3929406cfe9d
Base report:	T_AGG_EMPLOYEE - Basis
Remove duplicate rows:	no
Subtotals :	no

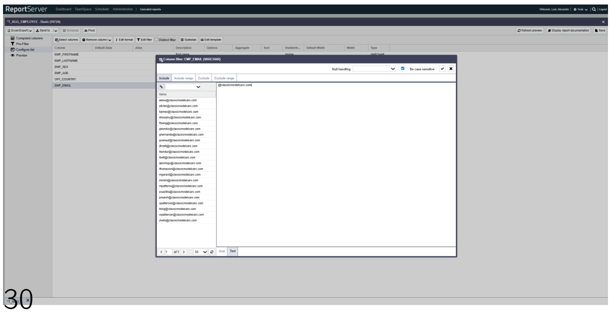
Columns

EMP_FIRSTNAME Vorname	Hidden: no	Order: -	Empty cells: -	Aggregation: -
EMP_LASTNAME Nachname	Hidden: no	Order: descending	Empty cells: -	Aggregation: -
EMP_EMPLOYEENUMBER Mitarbeiternummer	Hidden: no	Order: -	Empty cells: -	Aggregation: -
EMP_JOBTITLE Position	Hidden: no	Order: -	Empty cells: -	Aggregation: -
EMP_OFFICECODE Niederlassung	Hidden: no	Order: -	Empty cells: -	Aggregation: -
EMP_EMAIL Email Adresse	Hidden: no	Order: -	Empty cells: -	Aggregation: -
OFF_COUNTRY Land	Hidden: yes = "USA"	Order: -	Empty cells: -	Aggregation: -

Uuid: 74d2af83-e016-483a-9c00-3929406cfe9d Page 1 of 1

Figure 6.1: Example of a report documentation.

6.7 Filtering with Wildcards (*, ?)



In the filter dialog, you can work with wildcards in text input mode in addition to specifying exact values.

The wildcard * stands for a character sequence of arbitrary length. This also includes the empty string. Example: “Roof*” matches “Roof space”, “Roof truss”, and “Roof” itself.

The wildcard ***?*** represents exactly one arbitrary character.

Wildcards can also be used in the search field of the filter dialog.

For wildcards in range filters, the range is chosen as wide as possible. If the pattern defined by the wildcard matches multiple values, the smallest matching value is selected for the lower bound and the largest matching value for the upper bound.

Note that if there is no value matching the pattern for one of the bounds, the interval is empty. Especially for inclusion filters this can cause unexpected results; for example, “a* - z*” is empty if there is no value starting with “z”.

6.8 Aggregation

Aggregation refers to combining or consolidating data records that are identical with respect to a grouping attribute and therefore form a group. For each group contained in the source data, the result set contains one record.
As an example, consider a list of people with the attributes gender and age. One possible aggregation would be the average age grouped by gender. In this case, a list with `n` records is consolidated into a result with one row per gender.
With aggregation, we therefore distinguish between attributes that determine which group a record belongs to (gender) and those that are consolidated into a single value using an aggregate function.

Aggregate functions implemented in ReportServer are:

Average	Calculates the average value for an attribute.
Count	Returns the number of records per group.
Maximum	Returns the maximum value of the group.
Minimum	Returns the minimum value of the group.
Sum	Calculates the sum of all values in the group.
Variance	Calculates the variance.
Count distinct	Like Count, but considers only distinct values of the attribute.

If an aggregate function is set for a column in ReportServer, all columns without aggregation are automatically treated as grouping attributes. It is not possible for a list to contain columns that are neither part of the aggregation nor part of the grouping.

To use aggregations in evaluations, set the aggregate function to be used for individual columns/attributes in the List configuration aspect.

Subtotals

To display the underlying individual records per group when using aggregation, use the **Subtotals** function from the toolbar of the list configuration. In the dialog that opens, select from the non-aggregated columns those that should be used for grouping. All non-selected and non-aggregated attributes are shown in the individual records.

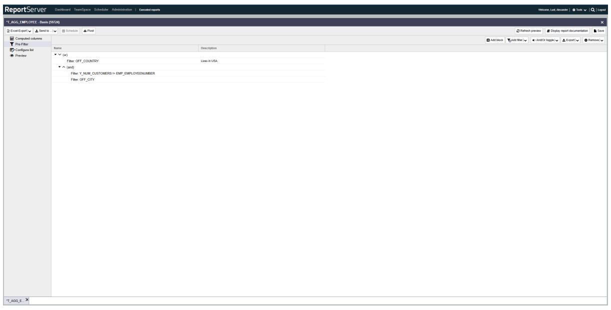
Filters and Aggregation

Filters in the List configuration aspect always apply to the visible final result. In combination with aggregation, this means that aggregation is performed first and the result is filtered afterwards. In our example with average age, a filter on the Age column filters the average age in the result, but it is not suitable for excluding individual records from the average calculation.

A filter on the "Age" column defined as "30 - " therefore does not change the average of the groups, but causes only groups with an average value greater than or equal to 30 to be displayed. If you are familiar with SQL, you can remember that filters on aggregated columns are implemented as HAVING filters.

To filter the records going into the aggregation (instead of filtering the aggregation result), you can use the Prefilter function described below.

Prefilter



*T_AGG_EMPLOYEE - Basis (59724)

Name	Description
(or)	
Filter: OFF_COUNTRY	Lives in USA
(and)	
Filter: Y_NUM_CUSTOMERS != EMP_EMPLOYEENUMBER	
Filter: OFF_CITY	

Prefilters are a powerful tool for restricting the data basis of an evaluation. Their uses go far beyond the filters in the List configuration aspect. The three main differences are:

Filters with OR combinations While all filters in the column configuration are combined with AND (a record is included only if it satisfies the filter conditions of all columns), the prefilter allows any combination of AND and OR expressions to link filter conditions across different columns.

Column comparison Column comparison allows you to define a filter criterion based on the relation between two attributes of a record. For example, you can select all records where the value in column A differs from the value in column B.

Filtering before aggregation As described in the previous section, filters in the list configuration always apply to the visible result; with aggregation, filters therefore apply only after aggregation. Prefilters, on the other hand, always apply before aggregation. If no aggregation is configured, there is no difference between prefilters and list configuration filters in this regard.

Structure of Prefilter Expressions

The prefilter contains a set of filter expressions that can be combined with AND and OR and can be nested arbitrarily.

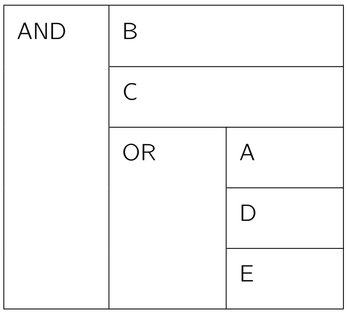
Consider an example with the following five filters
A := Age > 30
B := Gender == female
C := Place of residence == Berlin
D := Age < 5
E := Place of birth == Place of residence

Combining these individual filters into the following expression

```
(B AND C AND (A OR D OR E))
```

describes the set of all females living in Berlin that are either above 30, less than 5 years old or that have also been born in Berlin.

ReportServer displays such an expression as a tree, as follows:



AND and OR represent blocks that enclose the expressions below them. The AND block in the example therefore contains B, C, and the OR block. The OR block in turn contains A, D, and E.

When evaluating the tree, the individual filters (A, B, C, D, E) are first evaluated for each record. Each evaluation yields a boolean value: TRUE or FALSE.

Example record:
Age = 25
Gender = Female
Place of residence = Berlin
Place of birth = Stuttgart

Evaluating filters A to E against this record yields the following tree:

AND	TRUE	
	TRUE	
	OR	FALSE
		FALSE
		FALSE

In the next step, the truth values of blocks are determined by combining the truth values of the enclosed expressions using the block's logical operation.

An AND block is TRUE only if all enclosed expressions are TRUE. An OR block is TRUE if at least one enclosed expression is TRUE.

The block is then replaced by its truth value. This process is repeated until the root block is determined.

In the example, this happens in two steps:

AND	TRUE
	TRUE
	FALSE

FALSE

Thus, the example record is not part of the result set.

Using the toolbar you add blocks and filters to your expression. They are inserted below (as a part of) the currently selected block. Blocks and filters can be moved to another block via drag-and-drop. The order of expressions within a block is irrelevant. AND blocks can directly contain only OR blocks, and OR blocks can directly contain only AND blocks. When inserting new blocks or moving them, the correct type is chosen automatically.

Remark. Please note that the complete prefilter tree can be exported as a DOT file using the "Export to DOT" button (renderable with any Graphviz tool, including the ReportServer REST `dot-renderer`) or included in the Excel export using the `output_filters` or `output_complete_configuration` report properties. Further information can be found in the Administration Guide.

6.9 Calculations in Filters

The $-formula language mentioned several times can also be used in the filter dialog. Instead of a value, you can specify any formula in text mode. In filter formulas, in addition to the standard replacements (see Formula Language on page 63), the following additional objects/replacements are available for your own calculations:

today	A calendar object that allows calculations based on the current date, e.g. a range filter that finds all invoices from the last 7 days.
agg	Provides access to calculations over all values of the current column, e.g. to identify outliers.
analytical	Provides access to analytical functions, e.g. to define a filter that includes the top 10%.

Using the today object

The today object provides access to a full calendar. This calendar is initialized at runtime with the current date and time. Using the following functions, you can manipulate the date and/or time stored in the calendar.

firstDay	Sets the calendar to midnight (00:00) of the first day of the current month.
lastDay	Sets the calendar to the last second of the last day of the current month.
addDays	Moves the calendar forward/backward by the specified number of days.
addMonths	Moves the calendar forward/backward by the specified number of months.
addYears	Moves the calendar forward/backward by the specified number of years.
setDay	Sets the calendar to the specified day.
setMonth	Sets the calendar to the specified month.
setYear	Sets the calendar to the specified year.
clearTime	Resets the time to midnight.
addHours	Moves the calendar forward/backward by the specified number of hours.
addMinutes	Moves the calendar forward/backward by the specified number of minutes.
addSeconds	Moves the calendar forward/backward by the specified number of seconds.
setHours	Sets the time to the specified hour.
setMinutes	Sets the time to the specified minutes.
setSeconds	Sets the time to the specified seconds.
format	Converts the date to a text in the specified format. This is required to compare values against columns that are not of type Date (see the Date format table in Appendix C).

Example: You want to filter all invoices from the previous month. You can define the following inclusion range filter:

```
${today.firstDay().addMonths(-1)} - ${today.firstDay().addSeconds(-1)}
```

If the column is of type VARCHAR (i.e., a text column) and the format is given as day.month.year, you must extend the expressions with a call to the format function:

> **Tip.** More information on using the date format is available at https://docs.oracle.com/en/java/javase/21/docs/api/java.base/java/text/SimpleDateFormat.html.

```
${today.firstDay().addMonths(-1).format("dd.MM.yyyy")}
-
${today.firstDay().addSeconds(-1).format("dd.MM.yyyy")}
```

Using the agg object

The agg object provides access to calculations over all values of the current column. For example, you can define a filter expression that refers to the average value of the column.

The following functions are available:

avg	Calculates the average.
count	Counts the existing values.
countDistinct	Counts the existing distinct values.
sum	Sums all values in the column.
variance	Calculates the variance of the column.
max	Determines the maximum value of the column.
min	Determines the minimum value of the column.

Example. The formula `${agg.avg()-10}` - `${agg.avg()+10}` defines an interval of width 20 around the average value of the column. This expression can, for example, be used as a range filter to find values that deviate too much from the average value.

Tipp. In a range filter, there must be no spaces between the subtraction operator and the function call. Otherwise, the minus sign is interpreted as the range separator.

Tipp. Aggregate functions require a full scan of the data. With very large reports, this may take a little longer.

Using the analytical object

Similar to the agg object, the analytical object allows you to define filters on a column based on calculations over all values of that column. In contrast to agg, which always returns a single value, analytical returns a set of values. Therefore, the analytical object can be used only in value filters, not in range filters.

The following functions are provided by the analytical object:

top(n)	Returns the largest n values of the column.
bottom(n)	Returns the smallest n values of the column.
topGrouped(n,'Column name')	Returns the largest n values of the column, grouped by the specified column.
bottomGrouped(n,'Column name')	Returns the smallest n values of the column, grouped by the specified column.

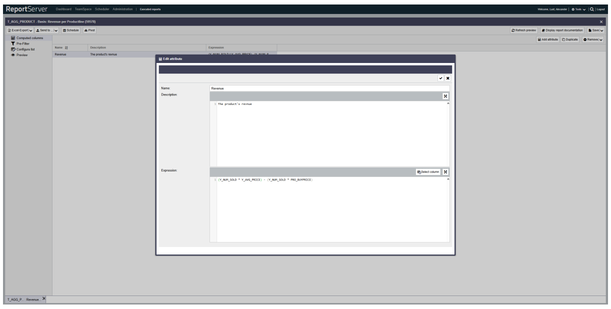
If `n` is given as an integer, it is interpreted as the number of values to return. A decimal number between 0 and 1 is interpreted as a percentage. For example, `top(0.1)` refers to the top 10%.

For the grouped functions, you must additionally specify a column name. The report is first grouped by this column and then the top or bottom values are determined.

Beispiel. Assume a report on the customer table with the two columns `Y_VOLUME` (customer revenue) and `CUS_COUNTRY` (customer country). We want to create a list that contains the top 5 customers per country for all countries. To do so, define a filter on the `Y_VOLUME` column using the following expression: `${analytical.topGrouped(5,'CUS_COUNTRY')}`. When evaluated at runtime, this expression returns the revenue values of the top customers per country. The filter on the revenue column therefore includes all customers whose revenue is identical to one of the top customers.

Anmerkung. Analytics functions require a full scan of the data. With very large reports, this may take a little longer.

6.10 Computed Fields



Name	Description	Expression
Revenue	The product's revnue	(Y_NUM_SOLD * Y_AVG_PRICE) - (Y_NUM_S

Name: Revenue

Description:

```
The product's revnue
```

Expression:

```
(Y_NUM_SOLD * Y_AVG_PRICE) - (Y_NUM_SOLD * PRO_BUYPRICE)
```

Computed fields allow you to extend your evaluation with columns that do not exist in the source data but can be derived from existing columns by means of a calculation rule.

The calculation rule is specified as an SQL expression that is executed directly on the database. This in particular means that the available expressions depend on the database in use. Your administrator can tell you which functions are available in detail. This section explains only some general possibilities.

If you have defined a computed field in ReportServer, you can then use it like any other column in your evaluations. To display it in the result, you must add the computed field to the list configuration aspect of your evaluation.

Anmerkung. When defining computed fields, you cannot access the values of other computed fields.

Computed fields are configured in the Computed Fields aspect. Here you can create fields and edit their definitions. The name you assign is used as the name of the created column and must therefore comply with the rules for column names (alphanumeric, no spaces). Column names must be unique.

SQL offers a wide range of possibilities to define a field, which clearly exceeds the scope of this guide. Nevertheless, here are a few code examples that are often used in computed fields.

In the following, we assume a table with the columns
A, B: text columns
C, D: integer columns

For simple calculations, you can use the basic arithmetic operators, e.g.
C + D as the definition for a field containing the sum of both columns.

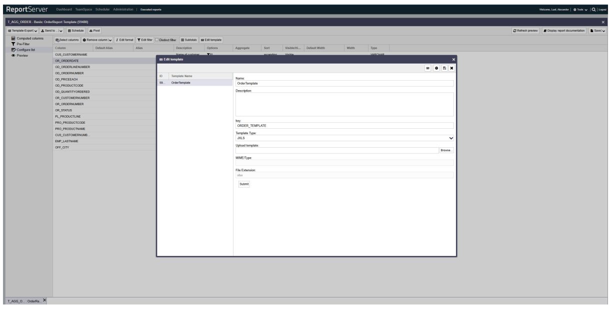
Concatenation (joining two text columns) is usually done with the || operator. The + operator or a call to CONCAT(A, B) are also common, depending on the database.

With CASE expressions you can formulate conditions, for example to classify values depending on their value.

```
CASE
  WHEN COLUMN < 500 THEN 1
  WHEN COLUMN < 1000 THEN 2
  WHEN COLUMN < 2000 THEN 3
  WHEN COLUMN < 3000 THEN 4
  ELSE 0
END
```

For CASE expressions, note that the first matching condition is chosen, regardless of whether a later condition might also match. The return values of all branches must have the same data type.

6.11 Templates



T_AGG_ORDER - Basis: OrderReport Template (59480)

Column	Default Alias	Alias	Description	Options	Aggregate	Sort	Visible/Hi...	Default Width	Width	Type
CUS_CUSTOMERNAME			Name of customer			ascending	Visible			VARCHAR
OR_ORDERDATE										
OD_ORDERLINENUMBER										
OD_ORDERNUMBER										
OD_PRICEEACH										
OD_PRODUCTCODE										
OD_QUANTITYORDERED										
OR_CUSTOMERNUMBER										
OR_ORDERNUMBER										
OR_STATUS										
PL_PRODUCTLINE										
PRO_PRODUCTCODE										
PRO_PRODUCTNAME										
CUS_CUSTOMERNUMB...										
EMP_LASTNAME										
OFF_CITY										

ID	Template Name
59...	OrderTemplate

Name: OrderTemplate
Description:
key: ORDER_TEMPLATE
Template Type: JXLS
Upload template:
MIME/Type:
File Extension: xlsx

In addition to the familiar export formats such as Excel or CSV, Dynamic Lists can also be inserted directly into predefined templates. In this section, we introduce the basic functionality.

Templates are managed when executing a Dynamic List via the **Edit template** button in the **List configuration** aspect. In the dialog that opens, you will see a list of the templates currently available for this variant. Using the toolbar, you can add new templates or download existing ones for editing.

In addition to a name and description, templates also have a type. Currently, the following types are available:

jXLS	Allows defining templates in Microsoft Excel.
XDoc	Allows defining templates in Microsoft Word.
Velocity	Allows defining text templates.
XSLT	Allows defining XML templates.

After creating a new template, you can upload the corresponding file. In the following, we provide an example for each template type. A complete documentation of the functionality would go beyond the scope of this manual. Further documentation on the individual template formats can be found at:

JXLS	https://jxls.sourceforge.net
XDocReport	https://github.com/opensagres/xdocreport
Velocity	https://velocity.apache.org/
XSLT	https://www.w3.org/TR/xslt

6.12 Excel Templates with JXLS

By integrating the JXLS template engine into ReportServer, it is possible to generate even sophisticatedly formatted Excel worksheets directly from the reporting platform. The JXLS approach is that the template—which determines the appearance of the final document—is itself an Excel workbook and can therefore be created and edited directly with Microsoft Excel. Special instructions in the template document control where data is inserted into the template.

Examples of JXLS in ReportServer can be found here: https://github.com/infofabrik/reportserver-samples/tree/main/src/net/datenwerke/rs/samples/templates/jxls.

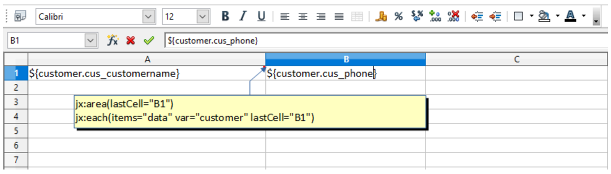
A detailed description of all JXLS features would go beyond the scope of this document; therefore, we only provide a short explanation of the basics. ReportServer supports JXLS2, which is briefly described below. The legacy JXLS1 version is not supported.

Excel Templates with JXLS2

A complete JXLS2 documentation can be found on the JXLS project website at https://jxls.sourceforge.net. Here we provide an overview of the most important components for working with ReportServer.

Remark. Please note that since ReportServer 3.4.0, you can export Dynamic Lists as JXLS templates. This functionality can help you when creating JXLS templates manually, since manual creation can be cumbersome in some cases. Many thanks to Karolina Boboli, who sent us this script and allowed us to use it.

In JXLS2 (https://jxls.sourceforge.net), you define JXLS2 commands using Excel comments. The JXLS2 engine analyzes these comments and transforms the template accordingly. Below, we show a simple example template and briefly explain its components. Further information can be found in the Administration Guide (JXLS reports) and in the JXLS2 documentation.



${customer.cus_phone}

${customer.cus_customername}

${customer.cus_phone}

jx:area(lastCell="B1")
jx:each(items="data" var="customer" lastCell="B1")

Consider the following example:

Cell A1 contains an Excel comment with the following text: `jx: area (lastCell ="B1")`. It defines the boundaries of our template as A1:B1.

It also contains a JXLS Each command with the following text: `jx: each (items ="data" var ="customer" lastCell ="B1")`. The Each command iterates over the collection of objects in the "data" variable and prints the corresponding information. The main area of the Each command is A1:B1 (defined by the `lastCell` attribute). This means the cells are cloned and processed for each new customer object in the context.

Note that "data" contains the data selected by the Dynamic List. This is provided automatically by ReportServer and can be used directly in JXLS templates when the template is used for a Dynamic List.

```
jx:area(lastCell="B1")
jx:each(items="data" var="customer" lastCell="B1")

${customer.cus_customername} | ${customer.cus_phone}
```

Please note that you must enter the field names in lower case so that they can be mapped correctly by the JXLS engine.

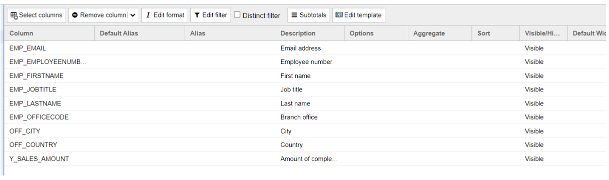
6.13 JXLS Template Example

Now that we have learned how templates generally work as a basis in ReportServer, we will turn to an example.

To get a practical feel for using templates in ReportServer, we illustrate a concrete example of templates with JXLS below.

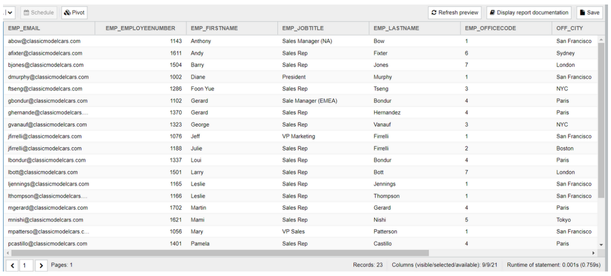
Creating a Dynamic List

First, we create a Dynamic List and select the columns whose values we want to output via the template in a template-defined format. In this example, we use the sample report "T_AGG_EMPLOYEE" and select the columns "EMP_EMAIL", "EMP_EMPLOYEENUMBER", "EMP_FIRSTNAME", "EMP_JOBTITLE", "EMP_LASTNAME", "EMP_OFFICECODE", "OFF_CITY", "OFF_COUNTRY", and "Y_SALES_AMOUNT".



Column	Default Alias	Alias	Description	Options	Aggregate	Sort	Visible/Hi...	Default Wic
EMP_EMAIL			Email address				Visible	
EMP_EMPLOYEENUMB...			Employee number				Visible	
EMP_FIRSTNAME			First name				Visible	
EMP_JOBTITLE			Job title				Visible	
EMP_LASTNAME			Last name				Visible	
EMP_OFFICECODE			Branch office				Visible	
OFF_CITY			City				Visible	
OFF_COUNTRY			Country				Visible	
Y_SALES_AMOUNT			Amount of comple...				Visible	

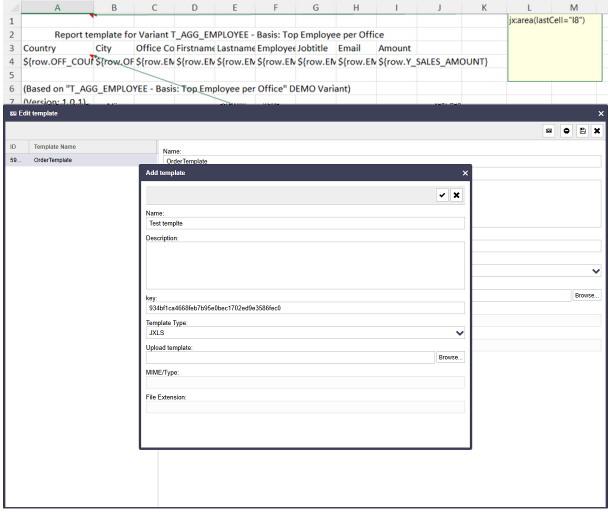
Here you can see, via a preview, all selected columns with their data per record.



EMP_EMAIL	EMP_EMPLOYEENUMBER	EMP_FIRSTNAME	EMP_JOBTITLE	EMP_LASTNAME	EMP_OFFICECODE	OFF_CITY
abow@classicmodelcars.com	1143	Anthony	Sales Manager (NA)	Bow	1	San Francisco
afixter@classicmodelcars.com	1611	Andy	Sales Rep	Fixter	6	Sydney
bjones@classicmodelcars.com	1504	Barry	Sales Rep	Jones	7	London
dmurphy@classicmodelcars.com	1002	Diane	President	Murphy	1	San Francisco
ftseng@classicmodelcars.com	1286	Foon Yue	Sales Rep	Tseng	3	NYC
gbondur@classicmodelcars.com	1102	Gerard	Sale Manager (EMEA)	Bondur	4	Paris
ghernande@classicmodelcars....	1370	Gerard	Sales Rep	Hernandez	4	Paris
gvanauf@classicmodelcars.com	1323	George	Sales Rep	Vanauf	3	NYC
jfirrelli@classicmodelcars.com	1076	Jeff	VP Marketing	Firrelli	1	San Francisco
jfirrelli@classicmodelcars.com	1188	Julie	Sales Rep	Firrelli	2	Boston
lbondur@classicmodelcars.com	1337	Loui	Sales Rep	Bondur	4	Paris
lbott@classicmodelcars.com	1501	Larry	Sales Rep	Bott	7	London
ljennings@classicmodelcars.com	1165	Leslie	Sales Rep	Jennings	1	San Francisco
lthompson@classicmodelcars....	1166	Leslie	Sales Rep	Thompson	1	San Francisco
mgerard@classicmodelcars.com	1702	Martin	Sales Rep	Gerard	4	Paris
mnishi@classicmodelcars.com	1621	Mami	Sales Rep	Nishi	5	Tokyo
mpatterso@classicmodelcars.c...	1056	Mary	VP Sales	Patterson	1	San Francisco
pcastillo@classicmodelcars.com	1401	Pamela	Sales Rep	Castillo	4	Paris

Pages: 1   Records: 23   Columns (visible/selected/available): 9/9/21   Runtime of statement: 0.001s (0.759s)

Next, we need to create the template. This is best done using Excel and can be based on an official example such as https://jxls.sourceforge.net/reference/each_command.html. For our example, you can download ready-made templates here: https://github.com/infofabrik/reportserver-samples/tree/main/src/net/datenwerke/rs/samples/templates/jxls/jxlsdynamiclist



	A	B	C	D	E	F	G	H	I	J	K	L	M
1												jx:area(lastCell="I8")	
2	Report template for Variant T_AGG_EMPLOYEE - Basis: Top Employee per Office												
3	Country	City	Office Co	Firstname	Lastname	Employee	Jobtitle	Email	Amount				
4	${row.OFF_COUI	${row.OF	${row.EN	${row.EN	${row.EN	${row.EN	${row.EN	${row.EN	${row.Y_SALES_AMOUNT}				
5													
6	(Based on "T_AGG_EMPLOYEE - Basis: Top Employee per Office" DEMO Variant)												
7	(Version: 1.0.1)												

Name: Test templte

Description:

key: 934bf1ca4668feb7b95e0bec1702ed9e3586fec0

Template Type: JXLS

Upload template:

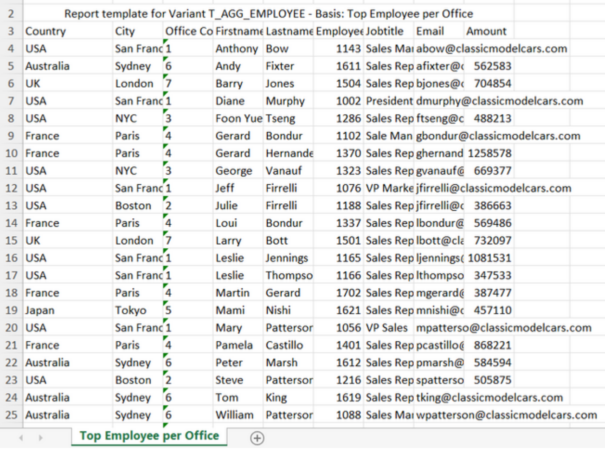
MIME/Type:

File Extension:

This is what the template looks like in an Excel file.

Now you only need to upload the template to ReportServer. Follow these instructions in exactly this order:

1. Click **Configure list**
2. Click **Edit template**
3. Click **Add template**
4. Select **JXLS** as the format in the **Template Type** drop-down menu
5. Upload the Excel file created earlier



2	Report template for Variant T_AGG_EMPLOYEE - Basis: Top Employee per Office								
3	Country	City	Office Co	Firstname	Lastname	Employee	Jobtitle	Email	Amount
4	USA	San Franc	1	Anthony	Bow	1143	Sales Mar	abow@classicmodelcars.com	
5	Australia	Sydney	6	Andy	Fixter	1611	Sales Rep	afixter@c	562583
6	UK	London	7	Barry	Jones	1504	Sales Rep	bjones@c	704854
7	USA	San Franc	1	Diane	Murphy	1002	President	dmurphy@classicmodelcars.com	
8	USA	NYC	3	Foon Yue	Tseng	1286	Sales Rep	ftseng@c	488213
9	France	Paris	4	Gerard	Bondur	1102	Sale Man	gbondur@classicmodelcars.com	
10	France	Paris	4	Gerard	Hernande	1370	Sales Rep	ghernand	1258578
11	USA	NYC	3	George	Vanauf	1323	Sales Rep	gvanauf@	669377
12	USA	San Franc	1	Jeff	Firrelli	1076	VP Marke	jfirrelli@classicmodelcars.com	
13	USA	Boston	2	Julie	Firrelli	1188	Sales Rep	jfirrelli@c	386663
14	France	Paris	4	Loui	Bondur	1337	Sales Rep	lbondur@	569486
15	UK	London	7	Larry	Bott	1501	Sales Rep	lbott@cla	732097
16	USA	San Franc	1	Leslie	Jennings	1165	Sales Rep	ljennings(	1081531
17	USA	San Franc	1	Leslie	Thompso	1166	Sales Rep	lthompso	347533
18	France	Paris	4	Martin	Gerard	1702	Sales Rep	mgerard@	387477
19	Japan	Tokyo	5	Mami	Nishi	1621	Sales Rep	mnishi@c	457110
20	USA	San Franc	1	Mary	Pattersor	1056	VP Sales	mpatterso@classicmodelcars.com	
21	France	Paris	4	Pamela	Castillo	1401	Sales Rep	pcastillo@	868221
22	Australia	Sydney	6	Peter	Marsh	1612	Sales Rep	pmarsh@	584594
23	USA	Boston	2	Steve	Pattersor	1216	Sales Rep	spatterso	505875
24	Australia	Sydney	6	Tom	King	1619	Sales Rep	tking@classicmodelcars.com	
25	Australia	Sydney	6	William	Pattersor	1088	Sales Mar	wpatterson@classicmodelcars.com	

The Dynamic List should now offer a new export format called **Template**. With the example template above, the exported Excel file should produce the following output.

6.14 Text Templates with Velocity

Velocity https://velocity.apache.org/ is a template language for text documents. It allows you to generate any output formats that use plain ASCII text as the file format.

You can find Velocity examples in ReportServer here: https://github.com/infofabrik/reportserver-sample tree/main/src/net/datenwerke/rs/samples/templates/velocity.

```
Hello world, this is a Velocity template!
```

Using the replacement $data, you can access individual records (the example assumes that the Dynamic List contains the field "CUS_CUSTOMER_NAME").

Customer list:

```
Customer List:
----------------------------------------------------------
#foreach ( $customer in $data )
```

```
  $customer.CUS_CUSTOMERNAME
#end
```

This template can also be downloaded from our reportserver-samples GitHub repository: https://github.com/infofabrik/reportserver-samples/tree/main/src/net/datenwerke/rs/samples/templates/velocity

Accessing Parameters

You can use/display your report parameter values by using the available “parameters” object. For example, if your report has a parameter “myparameter”, you can access it as follows:

```
$parameters.myparameter
```

You can also access all special parameters explained here: https://reportserver.net/en/guides/admin/chapters/using-parameters/ by using the available “meta” object. The following example prints the report name:

```
$meta._RS_REPORT_NAME.value
```

Note that, unlike the report parameters described above, “value” is required to retrieve the values of the special parameters.

6.15 Word Templates with XDocReport

XDocReport https://github.com/opensagres/xdocreport combines the Velocity template language with Microsoft Word.

You can find XDocReport examples in ReportServer here: https://github.com/infofabrik/reportserver-samples/tree/main/src/net/datenwerke/rs/samples/templates/xdoc.

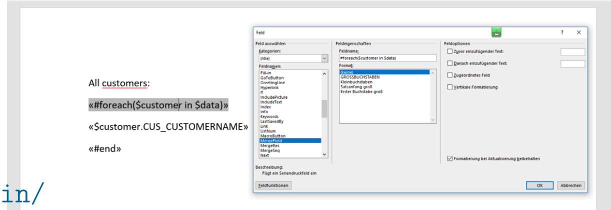
To use template commands such as

```
  #foreach ( $customer in $data )
```

you must embed them into so-called **MergeFields**. To do so, go to “Insert/Quick Parts/Field...” and select the ***MergeField*** field from the ***Mail merge*** category. In the input field under Field functions, enter the command. The Velocity example above could be represented as follows, where `MERGEFIELD[XX]` stands for a command as a merge field:

```
All customers:
MERGEFIELD[#foreach($customer in $data)]
MERGEFIELD[$customer.CUS_CUSTOMERNAME]
MERGEFIELD[#end]
```

The following screenshot shows the resulting template in Word. This template and the results of executing it can also be downloaded from our reportserver-samples GitHub repository: https://github.com/infofabrik/reportserver-samples/tree/main/src/net/datenwerke/rs/samples/templates/xdoc



All customers:

«#foreach($customer in $data)»

«$customer.CUS_CUSTOMERNAME»

«#end»

Feldname: #foreach($customer in $data)

Kategorien: (Alle)

Feldnamen: MergeField

Format: (keine)

☑ Formatierung bei Aktualisierung beibehalten

Beschreibung: Fügt ein Seriendruckfeld ein

Accessing Parameters

You can use/display your report parameter values by using the available “parameters” object. For example, if your report has a parameter “myparameter”, you can access it as follows:

```
MERGEFIELD[$parameters.myparameter]
```

You can also access all special parameters explained here: https://reportserver.net/en/guides/admin/chapters/using-parameters/ by using the available “meta” object. The following example prints the report name:

```
MERGEFIELD[$meta._RS_REPORT_NAME.value]
```

Note that, unlike the report parameters described above, “value” is required to retrieve the values of the special parameters.

6.16 XML Templates with XSLT

To create XML based on Dynamic Lists, you can use XSLT (Extensible Stylesheet Language Transformations).

The input data for the XSL transformation is the HTML export from ReportServer. Below we present a simple generic transformation that converts the data into a simple XML format by first listing all attributes and then inserting a “record” element for each record:

You can find this example here: https://github.com/infofabrik/reportserver-samples/blob/main/src/net/datenwerke/rs/samples/templates/xslt/.

```
<?xml version="1.0"?>
<xsl:stylesheet version="1.0"
xmlns:xsl="http://www.w3.org/1999/XSL/Transform"
xmlns:xhtml="http://www.w3.org/1999/xhtml">

<xsl:template match="/">
    <myXmlFormat>
    <xsl:apply-templates select="//xhtml:tr"/>
  </myXmlFormat>
</xsl:template>

<!-- attributes -->
<xsl:template match="xhtml:thead/xhtml:tr">
  <attributes>
  <xsl:apply-templates mode="attributes" />
  </attributes>
</xsl:template>
<xsl:template match="xhtml:th" mode="attributes">
  <attribute>
    <xsl:value-of select="."/>
  </attribute>
</xsl:template>

<!-- values -->
<xsl:template match="xhtml:tbody/xhtml:tr">
    <records>
  <xsl:apply-templates mode="values" />
  </records>
</xsl:template>
<xsl:template match="xhtml:td" mode="values">
```

```
  <record>
    <xsl:value-of select="."/>
  </record>
</xsl:template>

</xsl:stylesheet>
```

The result could then look as follows, for example:

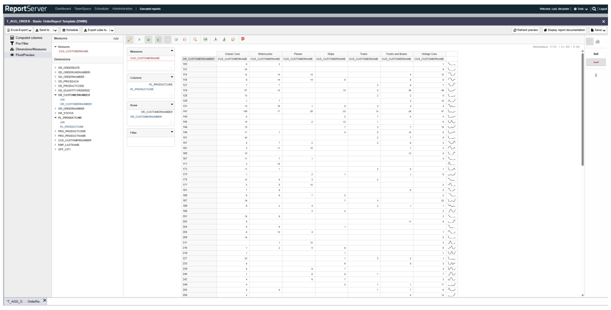
```
<?xml version="1.0" encoding="UTF-8"?>
<myXmlFormat
  xmlns:xhtml="http://www.w3.org/1999/xhtml">
  <attributes>
    <attribute>Country</attribute>
    <attribute>City</attribute>
    <attribute>Office Code</attribute>
    <attribute>Firstname</attribute>
    <attribute>Lastname</attribute>
    <attribute>Employee Nr</attribute>
    <attribute>Jobtitle</attribute>
    <attribute>Email</attribute>
    <attribute>Amount</attribute>
  </attributes>
  <records>
    <record>USA</record>
    <record>San Francisco</record>
    <record>1</record>
    <record>Leslie</record>
    <record>Jennings</record>
    <record>1165</record>
    <record>Sales Rep</record>
    <record>ljennings@classicmodelcars.com</record>
    <record>1.081.530,54</record>
  </records>
  <records>
    <record>USA</record>
    <record>NYC</record>
    <record>3</record>
    <record>George</record>
    <record>Vanauf</record>
    <record>1323</record>
    <record>Sales Rep</record>
    <record>gvanauf@classicmodelcars.com</record>
    <record>669.377,05</record>
  </records>
</myXmlFormat>
```

Chapter 7

The Pivot Mode of the Dynamic List

In Chapter Dynamic Lists we discussed the individual areas of the Dynamic List in detail. In this chapter we introduce a second mode of the Dynamic List that allows you to analyze data, prepare it hierarchically or as a cross table, and create charts: the Pivot mode of the Dynamic List.

To switch a Dynamic List to Pivot mode, select **Pivot** from the toolbar and confirm the prompt that appears. The view is reloaded in Pivot mode and you will see that the **Dimensions/Measures** aspect has replaced the ***List configuration*** aspect. The aspects ***Parameters*** (if available), ***Calculated Fields***, and ***Prefilter*** remain available and have the same meaning as in the normal mode of the Dynamic List.



7.1 Introduction

The Pivot function can most easily be described as an extension of aggregation. To illustrate this, we consider a simple example of a product survey. Table 7.1 describes the data set of the Dynamic List and contains records from a product survey. Each row corresponds to a rating of a product by a person. In addition to product category and product, the respondent's gender and an age grouping are stored, as well as the rating.

Using aggregation, you can aggregate the data in the Dynamic List (see Section 6.8). To do so, you first determine the grouping attributes and then the attributes to be aggregated. For example: group by product category and product, and aggregate the rating using the average function.

Product category	Product	Rating
Electronics	TV	3.71
	Refrigerator	3.8
Food	Cereal	3.75
	Chocolate	3.77

In contrast to simple aggregation, Pivot mode provides extensive options to create, modify, and rearrange aggregations quickly. This is a powerful tool for data analysis to develop an understanding of the data basis, and it also enables new and intuitive presentation forms.

Table 7.1: Data from a product survey. Each row contains one person's rating for a specific product.

Product category	**Product**	**Gender**	**Age**	**Rating**
Electronics	TV	m	40+	5
Electronics	TV	m	40+	3
Electronics	TV	f	40+	4
Electronics	TV	m	20-40	5
Electronics	TV	m	20-40	4
Electronics	TV	f	20-40	3
Electronics	TV	m	20-40	2
Electronics	Refrigerator	m	20-40	2
Electronics	Refrigerator	m	20-40	5
Electronics	Refrigerator	m	20-40	5
Electronics	Refrigerator	f	20-40	4
Electronics	Refrigerator	m	20-40	3
Food	Cereal	m	20-40	5
Food	Cereal	m	20-40	3
Food	Cereal	m	40+	4
Food	Cereal	f	20-40	3
Food	Chocolate	f	20-40	5
Food	Chocolate	f	20-40	3
Food	Chocolate	f	20-40	5
Food	Chocolate	m	20-40	4
Food	Chocolate	m	20-40	5
Food	Chocolate	f	20-40	2
Food	Chocolate	m	40+	3
Food	Chocolate	m	40+	4
Food	Chocolate	f	40+	3

For example, you can display the aggregation above as a cross table to additionally break down the data by the respondents' gender:

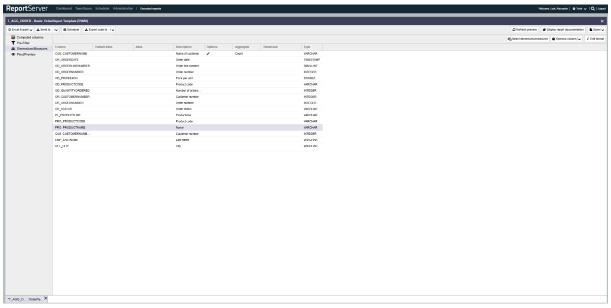
		male	female
Electronics	TV	3.8	3.5
	Refrigerator	3.75	4
Food	Cereal	4	3
	Chocolate	4	3.6

In addition to cross tables, the pivot table allows you to quickly change the aggregation level; for example, you can switch to the product category level with a simple mouse click.

	male	female
Electronics	3.8	3.7
Food	4	3.5

7.2 Working with Pivot

Working in Pivot mode is done in two steps. After switching the Dynamic List to Pivot mode, you first define in the **Dimensions/Measures** aspect which attributes you want to work with and whether these attributes are grouping characteristics (dimensions) or aggregation measures. For this, you use the column selection dialog familiar from the Dynamic List. The selected columns/attributes are then displayed in a list.



T_AGG_ORDER - Basis: OrderReport Template (59480)

Column	Default Alias	Alias	Description	Options	Aggregate	Dimension	Type
CUS_CUSTOMERNAME			Name of customer		Count		VARCHAR
OR_ORDERDATE			Order date				TIMESTAMP
OD_ORDERLINENUMBER			Order line number				SMALLINT
OD_ORDERNUMBER			Order number				INTEGER
OD_PRICEEACH			Price per unit				DOUBLE
OD_PRODUCTCODE			Product code				VARCHAR
OD_QUANTITYORDERED			Number of ordere...				INTEGER
OR_CUSTOMERNUMBER			Customer number				INTEGER
OR_ORDERNUMBER			Order number				INTEGER
OR_STATUS			Order status				VARCHAR
PL_PRODUCTLINE			Product-line				VARCHAR
PRO_PRODUCTCODE			Product code				VARCHAR
PRO_PRODUCTNAME			Name				VARCHAR
CUS_CUSTOMERNUMB...			Customer number				INTEGER
EMP_LASTNAME			Last name				VARCHAR
OFF_CITY			City				VARCHAR

Name. By default, attributes are assigned their technical name or, if available, a predefined name. To rename attributes, click the **Column name** cell (as in list configuration) and assign a new plain-text name.

Aggregation. To define an attribute as an aggregation measure (in the example above, this would be the ***Rating*** attribute), set an aggregation function for the attribute. The same aggregation functions are available as in the normal Dynamic List.

Dimensions. All attributes that are not marked as aggregation measures are treated as potential grouping attributes. A special characteristic is that grouping attributes can be organized along a shared dimension. In the example above, this applies to product category and product. Other examples are geographic attributes (e.g. continent, country, city) or time attributes (year, month, day). To mark related attributes, assign the same plain-text name in the **Dimension** column—in the example, for instance, ***Product*** for the attributes product category and product. In such a case, the order of the attributes matters and should be sorted from coarse to fine; in the example, product category should be above product.

Once dimensions and aggregation measures are configured, you can switch to the **Pivot/Preview** aspect, where the additional configuration takes place. Note that the **Calculated Fields** and **Prefilter** aspects work identically to the Dynamic List. Prefilters restrict the overall data set. Calculated fields can serve as dimensions or aggregation measures.

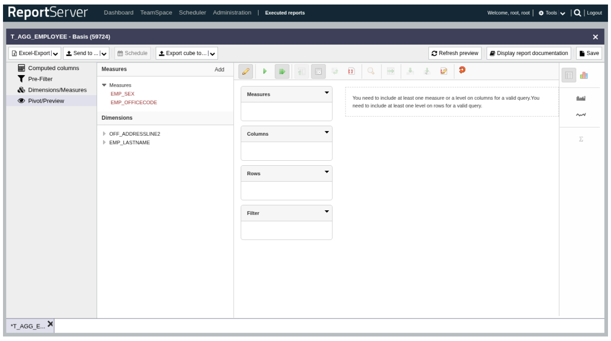
We introduce the actual pivot view in the following Chapter The Analysis View (Chapter 8). The analysis view is shared by the Pivot mode of the Dynamic List and OLAP reports (see Chapter 4).

Tipp. After making changes in any of the aspects, the analysis view (see Chapter 8) must be reloaded. To do so, use the **reload icon** (rotating arrow) from the toolbar in the analysis view.

Chapter 8

The Analysis View

The ReportServer analysis view[1] is used both by the pivot mode of the Dynamic List (see Chapter 7) and by OLAP reports. The handling is almost identical in both cases. The main difference is that for OLAP reports no additional configuration options can be made outside the analysis view. In the pivot mode of the Dynamic List, however, you as an end user define dimensions and measures and can restrict the dataset by means of prefilters, as well as create new attributes using calculated fields.



You need to include at least one measure or a level on columns for a valid query.You need to include at least one level on rows for a valid query.

8.1 Basics

The analysis view consists of four areas. Centrally at the top is the toolbar. It provides various options for adjusting the view. On the left you will find the available dimensions and measures. On the right you can switch between data and chart mode. In the center, as usual, is the main view in which the data is prepared and displayed.

To understand the basic mode of operation, it is easiest to think in terms of a (multidimensional) cross-tab. The following table is a representation of the product survey data from Chapter 7 (Table 7.1).

		male		**female**	
		20 - 40	**40+**	**20 - 40**	**40+**
Electronics	**TV**	3,7	4	3	4
	fridge	3,75		4	
Groceries	**cereals**	4	4	3	
	chocolate	4,5	3,5	3,75	3

[1] The basis of the analysis view is the open-source OSBI interface SAIKU https://github.com/OSBI/saiku. At this point, we would like to express our sincere thanks for a great project.

Here, grouping attributes are arranged on both columns and rows. At the intersection of the grouping attributes, measures are aggregated. The grey-highlighted cell thus contains the average rating of male respondents over 40 for the product TV. Schematically, we can represent such a cross-tab as follows:

	column properties
row characteristics	aggregations

The basic operation now corresponds to building such a cross-tab. In the central view you see the areas **columns** and **rows** (we will discuss the filter area later). Here you distribute the desired dimensions, in the example above product category and sex. Simply drag the dimensions from the left with the mouse onto the columns or rows area. As soon as at least one dimension has been placed on both rows and columns, a cross-tab is displayed below (depending on the amount of data, this may take a few moments).

If, for example, we drag the attribute product category to rows and sex to columns, the following table is displayed.

	male	**female**
Electronics	3,8	3,7
Groceries	4	3,5

As the aggregation measure, if none has been explicitly selected, the first one in the list is used. To make this explicit, drag the desired aggregation (in the example) rating also to the columns or rows. If a measure is dragged to columns, the following view results:

	male	**female**
	rating	**rating**
Electronics	3,8	3,7
Groceries	4	3,5

8.2 Dimensions

The existing dimensions are displayed on the left as folders. A dimension can include one or more attributes. For example, the Time dimension can contain the attributes year, month, and day. To view the existing attributes, open the dimension folder.

The (All) dimension

In addition to the existing attributes, you will see an attribute **(All)** for each dimension. You can drag this to rows or columns like other attributes. The **(All)** attribute essentially describes the entire dimension and thus provides an additional aggregation level. In the example above, product category and product would form a common dimension. The product dimension would therefore be shown on the left as follows:

```
Product
     │
     ├──── (All)
     ├──── Product category
     └──── Product
```

If you now place the **(All)** attribute on rows and the measure ***rating*** on columns, the following result table is produced:

	rating
All Products	3,76

The (All) attribute now allows you to look deeper into the dimension, i.e., to add further aggregation levels. To display sub-levels of the dimension, left-click on the label "All Products" in the displayed cross-tab and select **view children** from the context menu. This causes the display to change as follows:

		rating
All Products		3,76
	Electronics	3,75
	Groceries	3,77

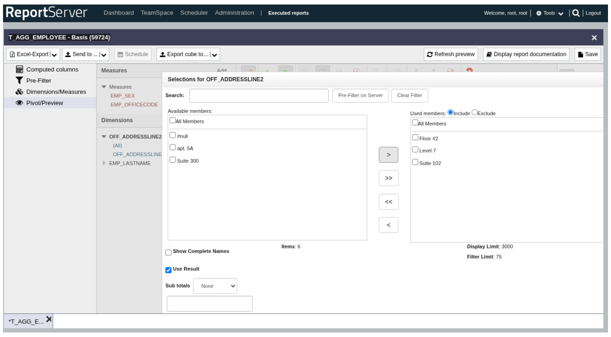
You can now continue to drill down into the dimension, or conversely remove breakdowns.

8.3 The Toolbar

In the following, we present the options of the toolbar in detail. From left to right you will find:

Execute query	Executes the query currently configured. As a rule, queries are executed automatically as soon as a change has been made (see the next tool). If this option is not enabled, you can start the query manually here.
Automatic execution	By default, the view is reloaded as soon as a change is made. With large data sets, this can have a noticeable impact on performance.
Hide empty parent members	Hides rows in the result list that have no value on the current aggregation level.
Suppress "Null"	Hides empty cells in the result.
Swap axes	Swaps columns and rows.
Show MDX	Displays the associated "MDX" (Multidimensional Expressions).
Zoom into table	If this function is enabled, click the desired table cell and navigate to the table element you want to select.
Drill across	Drills across the entire cell.
Drill through	Drills through to the underlying records for the selected cell.
Export drill (CSV)	Exports the result of a drill operation. See also Section 8.6.
Switch to MDX mode	Displays the associated "MDX" and allows you to edit it.
Reload	Reloads the analysis view. This is particularly important when working in the pivot mode of the Dynamic List in order to apply changes made in other aspects (e.g. adding measures and dimensions) to the analysis view.

8.4 Filtering and Sorting



Selections for OFF_ADDRESSLINE2

Search:

Available members:
□ All Members
□ #null
□ apt. 5A
□ Suite 300

Used members: ● Include ○ Exclude
□ All Members
□ Floor #2
□ Level 7
□ Suite 102

Items: 6

Display Limit: 3000
Filter Limit: 75

□ Show Complete Names

☑ Use Result

Sub totals: None

If you have dragged an attribute to the row or column area, you can define additional filters for it. Double-click the element to open the filter dialog. The filter dialog is structured similarly to the one known from the Dynamic List. If you are working in the pivot mode of a Dynamic List, we recommend using the Pre-Filter aspect for complex filters or when filtering on attributes with many distinct values.

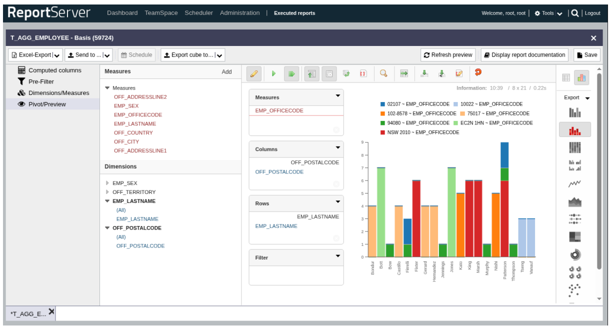
If you want to filter on dimensions that should not appear in the result set, you can drag them to the filter area.

Sorting

If you have dragged an attribute to the row or column area, you can activate sorting for this attribute using the arrows shown there (next to the magnifying glass, in the toolbar).

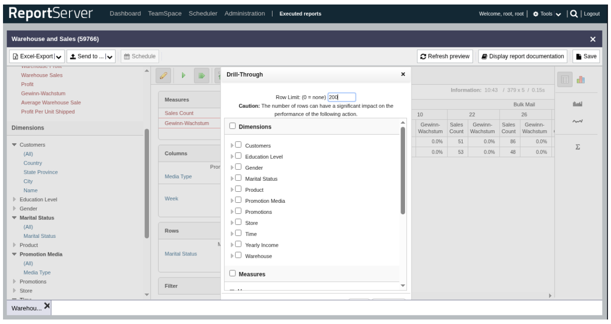
8.5 Chart Mode

Instead of displaying the result as a cross-tab, you can switch to chart mode using the right-hand sidebar. A wide range of chart types is available. Of course, you can also export a report in analysis mode as a chart or embed such a chart on your dashboard.



8.6 Drill

The drill function allows you to display the records underlying an aggregation result. To do so, select the drill tool in the toolbar and then click an aggregation result. In the following dialog, you can adjust the output by selecting the dimensions and measures to be returned. In addition, you can limit the maximum size of the result set. Please note that large result sets can have a significant impact on system performance and should therefore preferably be executed as an export (using the Drill Export button in the toolbar).



Row Limit: (0 = none) 200

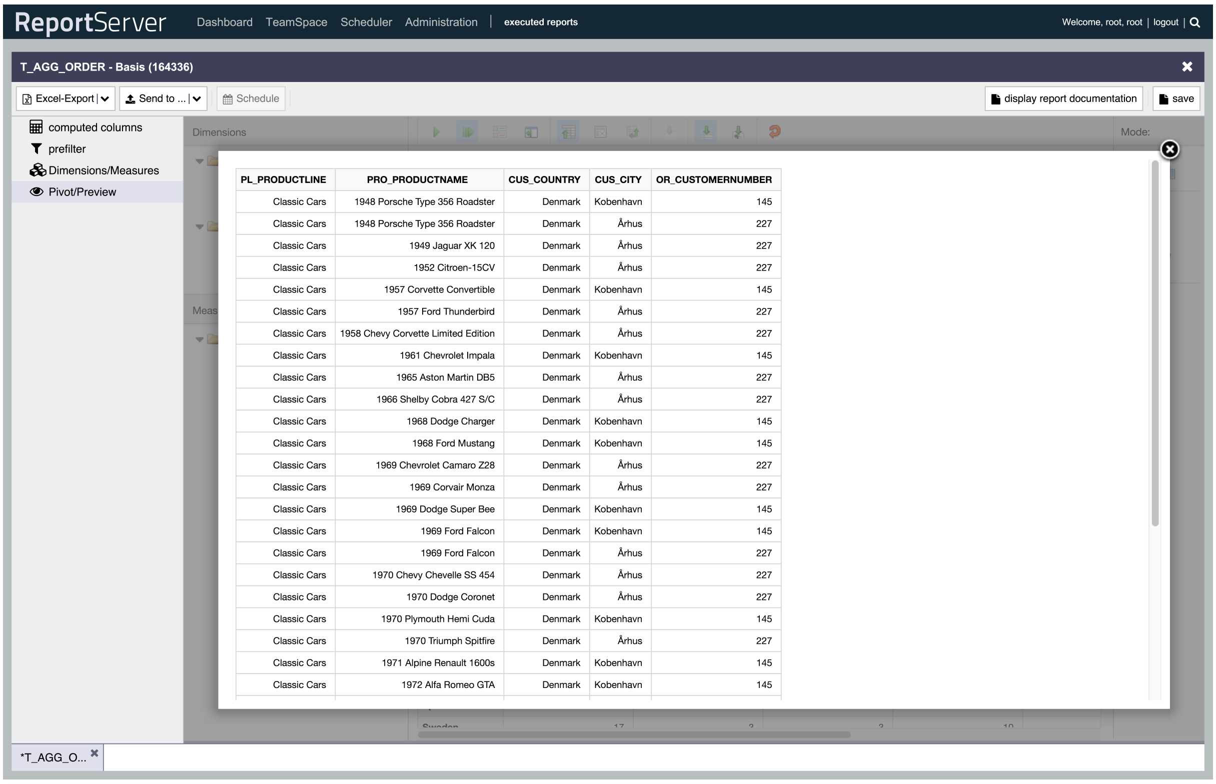
Caution: The number of rows can have a significant impact on the performance of the following action.

☐ **Dimensions**

- ☐ Customers
- ☐ Education Level
- ☐ Gender
- ☐ Marital Status
- ☐ Product
- ☐ Promotion Media
- ☐ Promotions
- ☐ Store
- ☐ Time
- ☐ Yearly Income
- ☐ Warehouse

☐ **Measures**

10		22		26	
Gewinn-Wachstum	Sales Count	Gewinn-Wachstum	Sales Count	Gewinn-Wachstum	
0.0%	51	0.0%	86	0.0%	
0.0%	53	0.0%	48	0.0%	



PL_PRODUCTLINE	PRO_PRODUCTNAME	CUS_COUNTRY	CUS_CITY	OR_CUSTOMERNUMBER
Classic Cars	1948 Porsche Type 356 Roadster	Denmark	Kobenhavn	145
Classic Cars	1948 Porsche Type 356 Roadster	Denmark	Århus	227
Classic Cars	1949 Jaguar XK 120	Denmark	Århus	227
Classic Cars	1952 Citroen-15CV	Denmark	Århus	227
Classic Cars	1957 Corvette Convertible	Denmark	Kobenhavn	145
Classic Cars	1957 Ford Thunderbird	Denmark	Århus	227
Classic Cars	1958 Chevy Corvette Limited Edition	Denmark	Århus	227
Classic Cars	1961 Chevrolet Impala	Denmark	Kobenhavn	145
Classic Cars	1965 Aston Martin DB5	Denmark	Århus	227
Classic Cars	1966 Shelby Cobra 427 S/C	Denmark	Århus	227
Classic Cars	1968 Dodge Charger	Denmark	Kobenhavn	145
Classic Cars	1968 Ford Mustang	Denmark	Kobenhavn	145
Classic Cars	1969 Chevrolet Camaro Z28	Denmark	Århus	227
Classic Cars	1969 Corvair Monza	Denmark	Århus	227
Classic Cars	1969 Dodge Super Bee	Denmark	Kobenhavn	145
Classic Cars	1969 Ford Falcon	Denmark	Kobenhavn	145
Classic Cars	1969 Ford Falcon	Denmark	Århus	227
Classic Cars	1970 Chevy Chevelle SS 454	Denmark	Århus	227
Classic Cars	1970 Dodge Coronet	Denmark	Århus	227
Classic Cars	1970 Plymouth Hemi Cuda	Denmark	Kobenhavn	145
Classic Cars	1970 Triumph Spitfire	Denmark	Århus	227
Classic Cars	1971 Alpine Renault 1600s	Denmark	Kobenhavn	145
Classic Cars	1972 Alfa Romeo GTA	Denmark	Kobenhavn	145

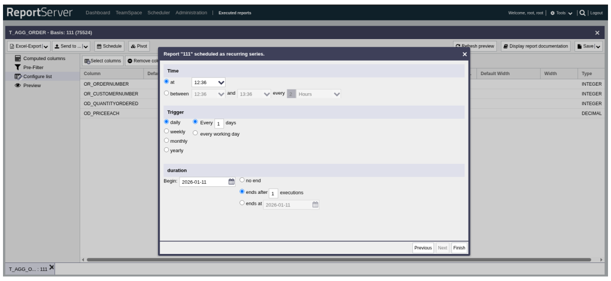
Chapter 9

Scheduling

The scheduling function allows you to execute reports automatically at a defined time and, for example, to send the result by email. All familiar export formats are available. The target of a schedule can either be the email account of a user registered in ReportServer, or a TeamSpace.

To schedule a report, open it in ReportServer and click on the **schedule** button in the toolbar.

In the dialog that opens, first select the desired output format and then specify the recipients of the schedule. Recipients are selected by double-clicking. If the report is sent by email, the specified persons will receive the exported report as an email attachment. If the report is scheduled to a TeamSpace, the recipients are only notified that a schedule has been executed.



Report "111" scheduled as recurring series.

Time

● at 12:36
○ between 12:36 and 13:36 every 2 Hours

Trigger

● daily ● Every 1 days
○ weekly ○ every working day
○ monthly
○ yearly

duration

Begin: 2026-01-11 ○ no end
● ends after 1 executions
○ ends at 2026-01-11

The **advanced options** checkbox enables additional configuration options on the following pages.

On the next page you select the scheduling targets. These can be TeamSpace and/or email recipients.

If sending as attachment is enabled, you can specify the subject and text of the message that will be sent upon execution.

For schedules to a TeamSpace, specify the desired target TeamSpace and the corresponding folder within it. In addition, you can define the name and description of the file to be created. In the **Name** field you can use a ${}-formula expression (see Formula Language on page 63). The replacement **now** allows you to access the current date.

Conditional Scheduling

If you have enabled the option to display advanced settings on the first page, the form page **conditional scheduling** is displayed. Conditional scheduling is a feature that allows you to suspend or delay the execution of a scheduled report if a precondition is not met. You define preconditions based on key figures provided by an administrator. Using the **add** button, you first select a set of key figures and then define a condition based on them. To formulate the condition, you use a $-formula expression that evaluates to a boolean value. For example, to check whether a key figure has a value greater than 5, specify the condition KNZ > 5, where KNZ denotes the name of the key figure. The otherwise usual $ specification is omitted.

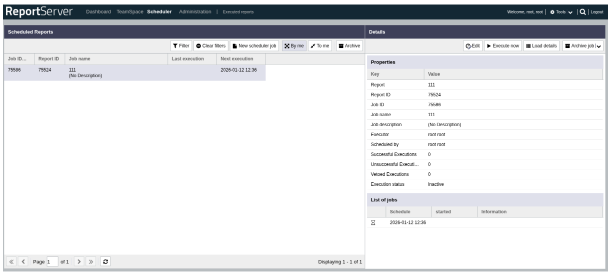
Alternatively, one or more pre-defined condition(s) provided by the administrator can be selected.

Using the **on failure** selection field you control whether execution should be skipped in this case or whether ReportServer should try again after a waiting time.

Recurrence Pattern

On the last dialog page you configure the execution plan, which specifies when and how often the report is to be executed. The configuration is similar to that of a recurring appointment in common calendar applications.

Scheduling Module



Job ID...	Report ID	Job name	Last execution	Next execution
75586	75524	111 (No Description)		2026-01-12 12:36

Properties

Key	Value
Report	111
Report ID	75524
Job ID	75586
Job name	111
Job description	(No Description)
Executor	root root
Scheduled by	root root
Successful Executions	0
Unsuccessful Executi...	0
Vetoed Executions	0
Execution status	Inactive

List of jobs

	Schedule	started	Information
⌛	2026-01-12 12:36		

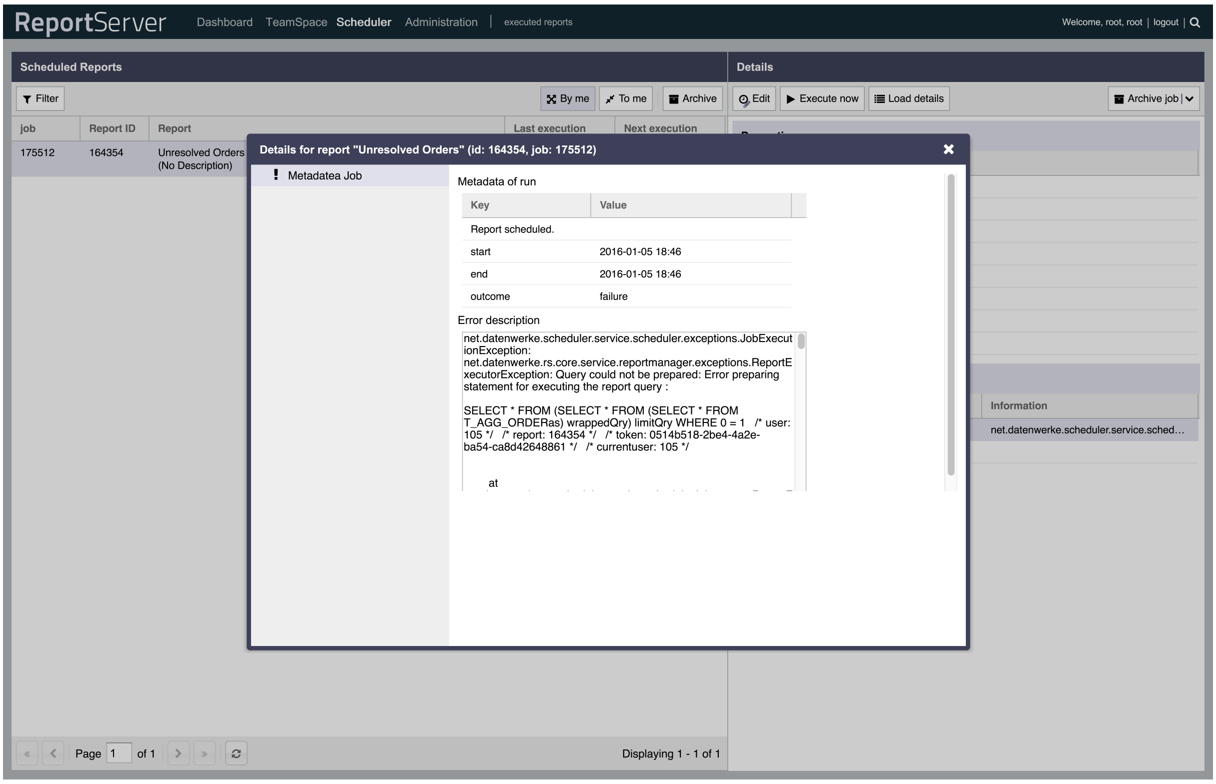
The **scheduling** module provides an overview of all schedules that were either created by you or for which you have been specified as a recipient.

All schedules are listed in the left half of the window. You can filter the view using the toolbar buttons. When you select a schedule, the detail view for it is loaded in the right half of the window.

The detail view shows, in addition to general information about the scheduled report, a history of past executions as well as the next upcoming execution dates. By double-clicking an execution that has already completed, you open a dialog with information about that execution. If an error occurred, you will find information about the cause here.

Using the toolbar in the detail view, it is also possible to trigger an immediate execution and to edit the execution plan. If the execution plan is edited, the old schedule is archived and a new schedule is created.

The **load details** button expands the list of past executions into a complete history. **delete** disables a schedule and moves it to the archive.



job	Report ID	Report	Last execution	Next execution
175512	164354	Unresolved Orders (No Description)		

Details for report "Unresolved Orders" (id: 164354, job: 175512)

Metadata of run

Key	Value
Report scheduled.	
start	2016-01-05 18:46
end	2016-01-05 18:46
outcome	failure

Error description

```
net.datenwerke.scheduler.service.scheduler.exceptions.JobExecutionException:
net.datenwerke.rs.core.service.reportmanager.exceptions.ReportExecutorException: Query could not be prepared: Error preparing statement for executing the report query :

SELECT * FROM (SELECT * FROM (SELECT * FROM T_AGG_ORDERas) wrappedQry) limitQry WHERE 0 = 1   /* user: 105 */   /* report: 164354 */   /* token: 0514b518-2be4-4a2e-ba54-ca8d42648861 */   /* currentuser: 105 */


      at
```

Figure 9.1: Display of detailed information for a failed schedule.

Appendix A

Report Documentation

For all variants stored in ReportServer, a report documentation can be retrieved. In addition to general information such as the name and ID of the report, it contains detailed information about the configuration.

In the following, we present an example report documentation.

The report documentation shows general information such as the report name and the creator as well as the selected configuration. In the example you see the report documentation of a graphical report. Since the configuration in this case consists only of parameters, the documentation contains only these details. For each parameter, the selected values are listed. Please note that the values shown here correspond to the values stored in the data.

For Dynamic Lists, the report documentation displays all selected settings in detail. First, parameter settings are listed (if available). Afterwards, all computed fields are listed including their calculation expressions. Pre-filters are shown—similar to the representation in this manual—in the form of ***Nassi–Shneiderman diagrams***. Filter conditions are specified in the following form:

`=`	`Inclusion`
`<>`	`Exclusion`
`[]`	`Inclusion interval`
`][`	`Exclusion interval`

All selected columns are listed. In addition to information such as the column name, all selected settings (aggregation, sorting, filters, format, etc.) are shown. Filters are specified in the same way as pre-filters.

Additional information includes the list of TeamSpaces and schedules that contain the specified report.

Appendix B

Formula Language

In many places, ReportServer supports entering formulas. Formula expressions are always enclosed by the character sequence `${}`. The actual expression is placed between the curly braces. ReportServer uses the Unified Expression Language (EL) standardized in JSR-245 (https://www.jcp.org/en/jsr/detail?id=245).

In formula expressions you can use simple calculations as well as string functions. For example, the expression `${3 + 5}` calculates the number 8. Depending on the context, different objects/replacements are available to you in expressions.

In addition to the basic arithmetic operations, the following mathematical operations are implemented:

math:random()	Returns a random number between 0 and 1
math:sin(Double)	Calculates the sine
math:cos(Double)	Calculates the cosine
math:tan(Double)	Calculates the tangent
math:abs(Double)	Returns the absolute value of a number
math:ceil(Double)	Rounds the given number up
math:floor(Double)	Rounds the given number down
math:round(Double)	Rounds the given number
math:max(Double, Double)	Returns the larger value
math:min(Double, Double)	Returns the smaller value
math:pow(Double, Double)	Returns the first value raised to the power of the second
math:log(Double)	Returns the natural logarithm
math:exp(Double)	Calculates e to the power of the given value
math:sqrt(Double)	Returns the square root
math:signum(Double)	Calculates the signum function

For processing strings, in addition to methods of the Java String object, the following helper methods are available:

sutils:left(String, int)	Returns the first n characters of the string
sutils:right(String, int)	Returns the last n characters of the string

For conditional expressions you can use the ternary operator

```
Condition ? expression if true : expression if false
```

For example, the following expression

```
${math:random() < 0.5 ? true : false}
```

returns a boolean value. If the random number is less than 0.5 (this happens in 50% of cases), TRUE is returned; otherwise FALSE is returned.

Working with objects

If an object is provided to you via a replacement, you can call methods on it. In filters or in date parameters, for example, the object "today" is available. To call a method of the object, write `${today.METHODNAME()}`. "today" returns a date relative to the current date. If you want to select the first day of the current month, write `${today.firstDay()}`. The following methods are available on the ***today*** object.

firstDay	Sets the calendar to midnight of the first day of the current month.
lastDay	Sets the calendar to the last second of the last day of the current month.
addDays	Moves the calendar forward/backward by the specified number of days.
addMonths	Moves the calendar forward/backward by the specified number of months.
addYears	Moves the calendar forward/backward by the specified number of years.
setDay	Sets the calendar to the specified day.
setMonth	Sets the calendar to the specified month.
setYear	Sets the calendar to the specified year.
clearTime	Resets the time to midnight.
addHours	Moves the calendar forward/backward by the specified number of hours.
addMinutes	Moves the calendar forward/backward by the specified number of minutes.
addSeconds	Moves the calendar forward/backward by the specified number of seconds.
setHours	Sets the time to the specified hour.
setMinutes	Sets the time to the specified minutes.
setSeconds	Sets the time to the specified seconds.
format	Converts the date to text in the specified format. This is necessary to perform comparisons on columns that are not of type Date (see the Date format table in Appendix C).

Example: You want to filter all invoices from the previous month. You can define the following inclusion interval:

```
${today.firstDay().addMonths(-1)} - ${today.firstDay().addSeconds(-1)}
```

Appendix C

Date Format

Letter	Date or Time Component	Presentation	Examples
G	Era designator	Text	AD
y	Year	Year	1996; 96
Y	Week year	Year	2009; 09
M	Month in year	Month	July; Jul; 07
w	Week in year	Number	27
W	Week in month	Number	2
D	Day in year	Number	189
d	Day in month	Number	10
F	Day of week in month	Number	2
E	Day name in week	Text	Tuesday; Tue
u	Day number of week (1 = Monday, ..., 7 = Sunday)	Number	1
a	Am/pm marker	Text	PM
H	Hour in day (0-23)	Number	0
k	Hour in day (1-24)	Number	24
K	Hour in am/pm (0-11)	Number	0
h	Hour in am/pm (1-12)	Number	12
m	Minute in hour	Number	30
s	Second in minute	Number	55
S	Millisecond	Number	978
z	Time zone	General time zone	PST; GMT-08:00
Z	Time zone	RFC 822 time zone	-0800
X	Time zone	ISO 8601 time zone	-08; -0800; -08:00

Table C.1: Taken from https://docs.oracle.com/javase/8/docs/api/java/text/SimpleDateFormat.html.