Reports Wizard

Application for IBM Lotus Notes and Domino®.

Version 3.0.1

Administrator guide (chapters 2, 3)

User guide (chapters 4, 5)

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1 Application

1.1 Description

The application Reports Wizard allows you to create reports using data from documents of databases IBM Lotus Notes® (NSF). Once describe in the application the data sources based on documents in databases, as well as their attributes and relations, and then apply them when creating structures of your reports.

Settings of a data source allow you to perform required data selecting and processing for a report. In addition to this, large amount of settings for reporting and data exporting give to you possibility to create reports of various complexity with result which doesn't require any additional processing, and this is without of using a programming language.

Obvious report structures can be understandable for a user with minimum skills in IT, to allow him himself to create and change his reports in the application.

Compatibility

The version 3.0.1 of the application that you can download on the page http://www.apps4notes.com/rw/en/download.htm was deeply tested and is watched its correct work in IBM Lotus Notes and Domino® ver. 6.x.x - 9.x.x with operating systems MS Windows® ver. XP, Vista, 7, 8, 8.1, 10 in any combinations.

Developer

The author and the proprietor of the app is Vadim Matvienko. For any questions about work of the application you should use the e-mail address: support@apps4notes.com. The site of the app: http://www.apps4notes.com.

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What's new in version 3.0.1 ?

Report structure

- Count of selection parameters available for setting in a data source of a report has been increased;

- The choosing of field names into an expression in Formula Language is now also available directly in column properties of a report;

Export of report data

- An expression in Formula Language for the replacing or the pasting text in data table after exporting now can be computed with column values of a certain data row of report;
- The deleting of rows / columns in data table after exporting now can be performed by a condition in Formula Language with column values of a certain data row of report;
- The export settings regarding the filling of empty cells in data table now also affect on HTML;

Other

- Few little bugs have been fixed.

1.2 Functions of the app

The application has large amount of functions concerning of report structures, report content, reporting, data exporting and additional service.

Report Structures

- Quick creating and modification;
- Obvious representing of data sources and columns;
- Setting up access levels to users.

Report Data

- Table view;
- Multilevel data placing from different sources;
- Consolidating data from different sources in a level;
- Setting up various data filters in a source;
- Multiple nested data grouping in table;
- Totals for a group and grand totals calculating by various methods;
- Computing columns in table using values of other ones;
- Multiple data sorting in table as text, number or date;
- Setting up row color for a data source and a data group;
- Setting up column color in row by condition.

Reporting

- Local reporting as well scheduled on server;
- Contextual local reporting based on selected documents in a database;
- Scheduled reporting at once with data exporting and mailing the reports;

- Saving reports data as documents Notes.

Data Export

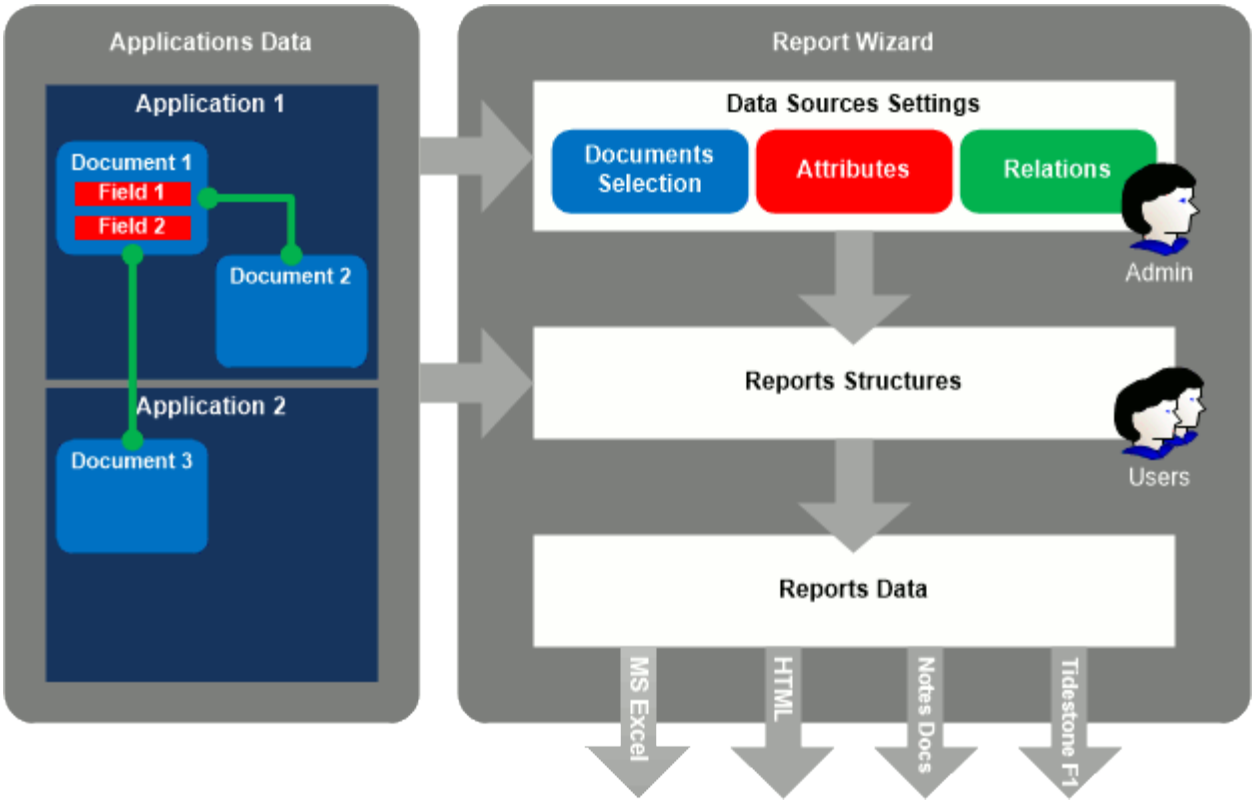
- Data exporting in MS Excel, Formula One (ActiveX), HTML;
- Applying a template for data table as well explicit setting up table properties;
- Transformations in data table after exporting such as autofilling empty cells, pasting or replacing text etc.;
- Formulas supporting for computing columns and totals after the export was done.

Additional Service (for saved reports data in the application as documents Notes)

- Opening source document in a database by clicking on data table row;
- Viewing rows in other reports having the same source document in a database.

1.3 Reporting process

The process in the application is supplied by existing settings documents for data sources, their attributes and relations. Basing on the settings documents, a user can create his report structures and set up properties for them. Chosen by a user data sources and their attributes in a report structure, as well set up properties for them, will affect reporting result.



In the course of reporting based on documents in databases according to the structure of a report an array of elements for each data source of the report is created. By default each data element is referenced to a one document of database. However you can apply a data processing in order for detailing or integrating data from documents. In this case the referencing will differ. The fields of document, which a data element refers to, are used for calculation of attribute values of data source element and relations to other data sources in the report. In result, depending on settings, each element in a reporting process will create a whole row of data table or will become a part of such row.

1.4 Settings for reporting

For reporting in the application, settings documents for data sources, their attributes and relations, are required. To perform it is enough easily and takes just a little time. A user can use the settings to create his report structures and set up properties which are provided for a structure element. The creating of settings documents is prerogative of IBM Lotus Notes® specialists having some skills in typing expressions in Formula Language.

The settings below are performed by users in the application.

Defining a report structure:

- Choosing data sources for report with setting up relations for them;
- Setting up data filtering for report by choosing selection parameters in a data source and values for them;
- Choosing attributes of a data source as column values of report table;
- Setting up various computing, data grouping, sorting and coloring in report table.

Moreover users can set up other properties of a report:

- Reporting period for data;
- Schedule of reporting;
- Access levels for other users to a report;
- Exporting report data;
- Contextual reporting from a database.

2 Application setup

2.1 Description

To setup the application you must perform the following steps:

- Setup ACL;
- Create the application replicas;
- Setup replication;
- Setup scheduled agents.

You can perform the most of the settings in the application setup wizard which is opening at the first start. If you want to cause the wizard later, open view **Settings** (Administering) and press **Application \ Setup**.

2.2 Setting ACL

Recommended access level for the app users is *Author*. For the extended access allocation in the application ACL the roles were added:

- **Administrator**

  Grants access to all settings documents and report data. Is working with access level - *Manager*.

- **ReadAllConfig**

  Grants access to view all settings documents of application (form *Config*). Can be useful for restricting access to read the settings *Path* by any users including with the role *Administrator*. The role can complement the role *Administrator*, but can be assigned separately. Is working with access level - *Reader* and above.

- **EditAllStruct**

  Grants access to edit all reports structures. Is working with access level - *Author* and above.

- **ReadAllStruct**

  Grants access to view all reports structures. Is working with access level - *Reader* and above.

- **SetSchedule**

  Grants access to set up reporting schedule and perform the scheduled reporting on server. Carefully grant the role to users because access level to documents of a database, used as a data source for a report when reporting on server, will be restricted be level of a user who signed the scheduled agent. Is working with access level - *Author* and above.

In the ACL of all application replicas the Domino servers, which the Settings Replica and the Data Replica were placed on, must have access level *Manager* with marked attributes *Delete documents* and *Replicate or copy documents* and the role *Administrator*.

2.3 Application replicas

For correct work of the application three its replicas are required:

- **Settings Replica**

  The Replica must contain all settings documents and reports structures. Intends for exchanging of the settings between all other replicas. Supply more availability to the replica on server for users.

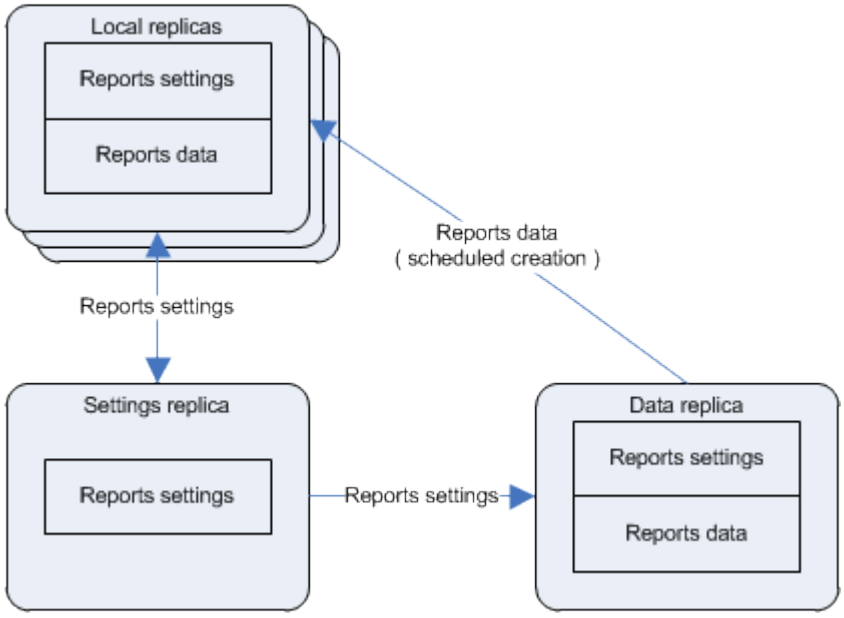
- **Data Replica**

  Besides the settings documents and reports structures can contain reports data created by scheduled reporting on server. Intends for running of the scheduled agents such as reports data

creating, exporting and sending the data by e-mail. Supply a little loading the server by other tasks and more free disk size.

- **Local Replica**

  Besides the settings documents and reports structures can contain reports data created by a user locally. Intends for creating and changing of the reports structures as well as for a local reporting by a user. After creating or changing of a report structure in the replica user must perform replication with Settings Replica that the changes became available for other replicas.



Settings Replica and Data Replica of the application can be combined in a single replica if you are restricted in count of Domino servers.

Settings Replica and Data Replica or their combined replica can be created in the application setup wizard which is opening at the first start or by pressing **Application \ Setup** in the view **Settings** (Administering) of Local Replica. If you want to create the replicas and setting replication by yourself, pay attention to changing some settings described in topics *Setting Replication* and *Settings document of Application* (tab *Replicas*).

2.4 Setting replication

Replication setting can be performed when you create the application replicas using the application setup wizard, which is opening at the first start or by pressing **Application \ Setup** in the view **Settings** (Administering). If you want to perform the setting by yourself, do the steps described in the help topic.

- In the replication settings of Settings Replica and Local Replica on the tab **Advanced** in the section **Receive these documents from other replicas** mark: **Design Elements**, **Agents**, **Access control list**, **Deletions**. For Settings Replica exclude **Deletions** because of there is deferred documents deleting on server.
- In the replication settings of the Data Replica on the tab **Advanced** in the section **Receive only a subset of information from other replicas** mark **Documents by selection formula** and type the formula:

SELECT Form != "DataEntry"

The replication formula prohibits sending of the documents with the form *DataEntry* to Settings Replica from other replicas. The documents are created in the time of a reporting to supply the storing of reports data in the application Reports Wizard.

If you combine Settings Replica and Data Replica in the single replica, use for it the same settings that for Settings Replica but type another replication formula:

SELECT ! (Form = "DataEntry" & Server = "")

The replication between the servers must be of the oneway type in order to only send the settings documents to the Data Replica. Use the server connection document for the replication setting.

2.5 Scheduled agents

2.5.1 Description

In the application are three scheduled agents: *ScheduleCreateData*, *ScheduleDeteteData*, *ScheduleDeleteSettings*.

Initially all the agents signed by the user *Developers Team/Apps4Notes*. Sign their ID of your organization before work beginning.

Enabling and signing the agents can be performed when you create the application replicas using the application setup wizard, which is opening at the first start or by pressing **Application \ Setup** in the view **Settings** (Administering). For enabling, disabling, signing of an agent as well as for setting up a running server for it anytime, do the steps:

- Open view **Settings**;
- In the menu select **Agents \ Enable (Disable) AgentName**, where AgentName is a scheduled agent name.

The current status of a agent you can view in the *Settings document of Application* (tab *Agents*) in the section named by its name.

2.5.2 Agent ScheduleCreateData

The agent is required for a scheduled reporting on server. Besides creating report data, the agent can perform exporting the data in a file and sending it by e-mail.

The agent must be run in Data Replica. Run settings are: every hour all day.

Before work beginning, sign the agent by ID having enough access level to read the documents in a database which are a data source for a report.

Moreover, if you want to perform the report data exporting on server after reporting, set up enough level of operations performing for the ID by having chosen it in the Server Document on the tab **Security** in the field **Run unrestricted methods and operations**.

Only users for which the role **SetSchedule** is set in ACL can set up a schedule and perform a scheduled reporting on server.

2.5.3 Agent ScheduleDeleteData

The agent is required for deletion of report data created on server by schedule.

The agent must be run in Data Replica. Run settings are: daily, time 00:00.

To view the current status of a agent and set up documents deletion properties you can in the *Settings document of Application* (tab *Agents*) with the name *ScheduleDeleteData*.

2.5.4 Agent ScheduleDeleteSettings

The agent is required to delete any documents in the app, but not report data. In the application is deferred documents deletion on server. When a user deletes documents in Local Replica, they only are being marked as deleted (field Deleted = "1") and after replication will be really deleted on server by the agent.

The agent must be run in Settings Replica. Run settings are: dally, time 00:00.

To view the current status of a agent and set up documents deletion properties you can in the *Settings document of Application* (tab *Agents*) with the name *ScheduleDeleteSetting*.

2.6 Settings document of Application

For correct work of the application the settings document of Application which contains the common settings of the app Reports Wizard is required. The settings document can be created when you create the application replicas using the application setup wizard, which is opening at the first start or by pressing **Application \ Setup** in the view **Settings** (Administering). The settings document of Application is placed in the view **Settings** (Administering) available for the role **Administrator**.

2.6.1 Tab Application

On the tab are set the common settings for working of the application Reports Wizard.

- Option **Initial setup was done**;

  Sets the causing the setup wizard of application at the its next opening. No mark in the option means the wizard will be opened, mark - will not. Matters only for Local Replica.

- Option **Handle errors at code execution**;

  The mark in the option means showing message box with hierarchy of calling procedures of script library if an error at the code is occurred. The property can be useful to understand the reasons of a fail at report's build in the application.

- Option **Count and show time of code execution**;

  The mark in the option means the counting and subsequent showing the execution time of each script library procedure and total time of code execution. The property can be useful to analyze the time spending at the building of a report with the purpose the time reduction thru optimization of the report structure.

- Option **Show progress bar**.

The mark in the option means the showing of progress bar at reporting in the application with indicating a data source processed at the moment.

2.6.2 Tab Replicas

The settings on the tab define the placement of the application replicas. The settings can be performed when you create the application replicas using the application setup wizard, which is opening at the first start or by pressing **Application \ Setup** in the view **Settings** (Administering). To set up them yourself, perform the steps:

- Open the view **Settings** (Administering);
- Open the tab **Replicas** of the Settings document of Application and fill the fields for a replica:

For Local Replica:

- Field **Documents count (reports' data) when to prompt users to delete them.**

  Sets up count of documents that is report data (form *DataEntry*), which exceeding of will open the message box with suggestion to delete the documents in a Local Replica. Value by default is 5000.

For Data Replica and Settings Replica:

- In the field **Server** type server name with the replica;
- In the field **File** type path and name of the replica file in relative to data folder of the Domino server;
- In the field **Replica ID** type the replica ID.

If you combine Settings Replica and Data Replica in single replica, type the same server name, file name and replica ID in the both sections of the tab.

2.6.3 Tab Agents

A section on the tab shows the current status of a scheduled agent. A agent status contains info about whether the agent is enabled or disabled as well as name of a server which it is running on and a user name who signed it. There are three settings sections named as the agents: *ScheduleCreateData*, *ScheduleDeleteData*, *ScheduleDeleteSettings*.

Moreover, on the tab you can set up some agent properties specified for each.

For the agent *ScheduleDeleteData*:

- Field **Days' count to store documents on server**.

  Default value - 5.

For the agent *ScheduleDeleteSettings*:

- Field **Days' count to delay documents deletion on server**.

  Default value - 30.

2.6.4 Tab Files

The tab contains the files required for the application work and allows to set up some properties of their using.

Section **Tidestone Formula One**.

- Field **Attached Files**;

  In the field are stored the files regsvr32.exe and ttf16.ocx. The files are required to setup the program component ActiveX Tidestone FormulaOne which can be used for report data exporting for the purpose of their viewing or saving in a file.

- Field **Files Folder**.

  Type in the field the folder name for temporary placement of the files in order to setup the component. If the folder does not exist on disk, it will be created.

Setting up the program component will be suggested to a user when the first exporting in Tidestone F1 is performed. If you want to setup it yourself, you should save these two files in a folder and open command line MS Windows and type in it:

regsvr32.exe ttf16.ocx

2.6.5 Tab Values for Pasting

Sets up the tags for pasting a text into a report table during data exporting. A user choose the tags from list when he types a text expression for pasting. At a exporting, the expression will be computed with tags values inside of it and the result will be pasted into table.

Each tag must be described in the format:

tag name || *tag value*

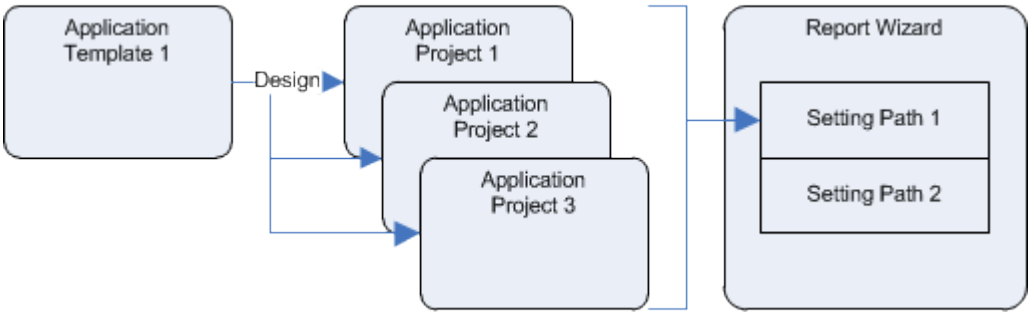
where *tag name* is a expression in formula language for computing the tag name, *tag value* is an expression in formula language for computing the tag value. The expression will be computed on properties document for a report (form *Report*) during data exporting.

2.6.6 Tab Settings Path

On the tab are displayed existing the settings *Path*. To create new setting Path, press the button *Add Setting*.

2.7 Settings documents Path

The settings documents must define the placement of all databases whose documents can be used as data sources for a report. One such document can describe several databases in case all they contain data of the same type. For example, the data partitioned by projects, years, etc. The databases described in a settings document *Path* should have the same or similar template NTF. Moreover, a setting *Path* can contain views and forms descriptions contained in a database for setting up contextual reporting.



To create a settings document *Path* do:

- Open view **Settings** (Administering);
- In the menu select **Create \ Setting Path**;
- In the document fill the fields:
  - In field **Name** type a name that will be used in other settings;
  - In field **Description** type a name that will be understandable for a user and mean all the databases that will be described in the setting;
  - In field **Value List** type strings of specified format.

For a database description:

db | *project name* | *server name* | *file path* | *replica id*

where *db* is keyword, *project name* is database name understandable for a user, *server name* is abbreviate server name, *file path* is path and name of file in relation to data folder of Domino server, *replica id* is 16-digit replica ID of a database. The description will be available for choosing when setting up a data source in a report. To add a database by choosing from list press **Add Database** at the top. For a local database as server name you should type the symbol "-". You can type the symbol "?" instead of replica id in a database description when typing it but you should press **Set Replica IDs** at the ending of the setting to update the IDs for all databases.

For a form description:

form | *form title* | *form name*

where *form* is keyword, *form title* is a form name understandable for a user, *form name* is name of a form in a database. The description will be used to set up contextual reporting on a open document in a database. Press **Add Forms** to add forms descriptions in the required format.

For a view description:

view | *view name*

where *view* is keyword, *view name* - name of a view or a group of views united together by left parts of their names until any symbol "\". The description will be used to set up contextual reporting on selected documents in a view of a database. To describe a view as well as all nested views within it you should add to the view name the symbol "\". Press **Add Views** to add views descriptions in the required format.

2.8 Preparing databases for contextual reporting from them

Contextual reporting on an open document or on selected documents in a view of a database will be available if you do the next:

- Create a button in document forms or in views which a contextual reporting could be performed from;

  For example, in order to build a report and at the same time export its data to MS Excel, type in the button the code to run the agent *(ReportData.CreateRemote&ExportExcel)* in Local Replica of the application using Lotus Script:

  Dim ss As New NotesSession

  ss.GetDatabase("", "rwizard.nsf").GetAgent("(ReportData.CreateRemote&ExportExcel)").Run

  and replace *rwizard.nsf* with file path and file name of a user's Local Replica in relation to data folder of Lotus Notes.

  Also you can create a button in the toolbar of Lotus Notes and create agent with the code typed above to have an opportunity to build contextual reports from any place of any database. For the button type the code to run your agent:

  @Command([ToolsRunMacro] ; "YourAgentName")

- Add forms' and views' descriptions of a database for contextual reporting in settings document *Path*;
- Fill the field *Documents Form* in the section *Initial Selection* when setting up a data source.

Type of, forms and views list for contextual reporting will be chosen by a user when he is setting up a report structure. A contextual reporting can be done only on documents with the form (field *Form*) that matches either to the first data source in a report structure or to a data source which exists a relation to the first data source from.

3 Data sources

3.1 Initial documents selection

3.1.1 Description

The settings document of a data source defines initial and additional selection database documents which can be used as a data source for a report. The documents in databases should contain data of the same type.

When a user will create a report structure he can choose data sources and set up properties for them. Besides the settings documents of data sources, for creating a report structure settings documents for attributes and relations of data sources are required.

3.1.2 Adding

Creating the settings documents of data sources should be done after creating settings document *Path* for databases which data will be got from into a report.

To create a settings document of data source, do the next:

- Open the view **Data Sources**;
- Press in the view **Data Source \ Initial Documents Selection**.

The created settings documents are displayed in the view *Data Sources* inside of the category with name of data source and marked by blue color.

3.1.3 Settings

- Field **Name**;

  Type a name that is understandable for a user and matches to the data type in a database. For example, Customers, Agreements, etc.

- Section **Databases**;

  Sets the choosing the databases by a user while he is setting up a data source in a report.

  - Field **Name**;

    Type a name of the parameter for a user. The name will be displayed to the left of its value. Name by default is *Projects*.

  - Field **Setting Path**;

    Choose the name of a settings document *Path*. The chosen here parameter will define choices of databases available for a user while he is setting up a data source in a report. Choose a value from existing settings *Path* or create a new one.

- Section **Initial Selection**;

  Sets the initial selection of documents from a database for the data source.

  - Field **Documents Form** (optional);

    Type a form name of documents in a database (field *Form*). Is required for contextual reporting from a database.

  - Field **@ Selection Formula**.

    Type a condition in Formula Language: result of checking *@True* (1) for a document means selection of it.

- Section **Selection Parameters**.

Create selection parameters if it's required. Each parameter can be used as additional selection of documents for a report.

3.2 Selection parameters

3.2.1 Description

A data source can have selection parameters for its setting. A settings document of parameter can be used for additional selection of documents in a database for a report. Each parameter has a name and

values. Values will be chosen from list of possible by a user while he is setting up a data source in a report.

3.2.2 Adding

To create a selection parameter for a data source, do the next:

- Open the view **Data Sources**;
- Open the settings document of data source which you want to create selection parameter for;
- In the section **Selection Parameters** press **Add**.

The created settings documents are displayed both in the embedded view inside of data source and in the view *Data Sources* in the category with name of the data source.

3.2.3 Settings

- Field **Name**;

  Type a name of parameter that is understandable for a user. For example: Customer Types, Contract Statuses, etc.

- Option **Type**;

  Defines how the parameter will select documents in a database.

  - Choice **Documents Selection**;

    Means that resulting expression of the parameter will be added to condition of documents selection for data source as its part. Resulting expression of a parameter is its values list chosen by a user and placed in text of the list processing.

  - Choice **Condition for Selected Documents**.

    Means that resulting expression of the parameter will be computed for each of already selected documents: the result of computing *@True* (1) for a document means it selecting. The type can be useful if you want to use @-functions unavailable for the method *NotesDatabase.Search*, for example, the function *@DBLookup*. Keep in mind that using such functions can much increase the time of reporting.

- Section **List of Possible Values**;

  The list will be computed and available for a user when he is setting up a data source in a report structure.

  - Option **Get From**;

    Sets the method of getting the list.

    - Choice **Documents of Data Source**;

      Means the typing an expression below, that will be computed for each of documents selected by other parameters of data source. Values in the list will be made unique and sorted alphabetically. In most cases the expression could be just a field name.

- Choice **Other**.

  Means the typing an expression below, the result of which will be the list of possible values for the parameter.

- Field **@ Expression.**

  Type an expression in Formula Language for computing the list of possible values for the parameter. You can compute visible and applicable parts of a value. The output format of such value is:

  visible part | *applicable part*

  In an expression you can use the keywords *KeyServer* and *KeyFile*.

- Section **List Processing**.

  The values of the fields will be applied to the parameter values chosen by a user to form the resulting expression of the selection parameter. Fill the fields: **Part Before List**, **Values Separator in List**, **Part After List**. The result of applying the list processing should be a valid expression in Formula Language.

3.3 Attributes

3.3.1 Description

The settings document of a data source attribute defines a part of data from a document which can be used for a reporting. A user can choose the attribute as a column of a report table.

3.3.2 Adding

To create an attribute for a data source, do the next:

- Open the view **Data Sources**;
- Select or open a settings document of data source which you want to create an attribute for;
- Press **Attribute** at the top.

The created settings documents of attributes are displayed in the view *Data Sources* in category with name of data source and marked by red color.

3.3.3 Settings

- Field **Name**;

  Type a name for the attribute that is understandable for a user. For example: Contract Number, Contract Date, etc.

- Field **@ Value**;

  Type a field name or an expression in Formula Language to compute the attribute value. The expression will be computed for a document of the data source at a reporting.

- Section **Parameters**;

Create parameters for the attribute if it's required. A parameter should affect result of computing the value for the attribute.

- Field **@ Value with Parameters**.

  Use the names of created parameters when you type an expression in the field as own keywords. During setting a report the parameters names will be replaced with values chosen by a user. If you have created the parameters but user will choose no one of them, for computing a value for the attribute the expression that has been typed in the field *@ Value* above, is applied.

3.4 Attribute parameters

3.4.1 Description

An attribute of a data source can have parameters that affect the result of computing its value. Each parameter has a name and values. The values will be set up by a user while he is configuring his report by choosing from list of possible. Use names of the parameters as keywords when you are typing an expression in Formula Language in the field *@ Values with Parameters* of an attribute settings document. At a setting of a report the parameters names in the expression will be replaced with their values chosen by a user.

3.4.2 Adding

To create a parameter for a data source attribute, do the next:

- Open the view **Data Sources**;
- Open the attribute settings document, which you want to create parameter for;
- In the section **Parameters** press **Add**.

The created parameters are displayed both in the embedded view inside of attribute settings document and in the view *Data Sources* inside the category with names of data source and attribute.

3.4.3 Settings

- Field **Name**;

  Type a name for the parameter that is understandable for a user. If you want to separate visible and programmatic name, use the format:

  visible name | *programmatic name*

  The visible name will be displayed for a user when he is setting up a report column and can be changed at any time. The programmatic name you should use in an expression in Formula Language in the field *@ Value with Parameters* of the attribute settings document and keep it stable.

- Field **@ List of Possible Values**;

  Type an expression in Formula Language in order to compute list of possible values for the parameter. The list will be computed and available for a user while he is setting up a column in a report structure. You can compute visible and applicable parts of a value in the list. The output format of such value is:

visible part | *applicable part*

In an expression you can use the keywords *KeyServer* and *KeyFile*.

3.5 Relations

3.5.1 Description

A relation settings document defines a relation between the data elements (documents or strings) matched to two data sources. Report structures which could be created by a user depend on the settings documents.

3.5.2 Adding

To create a relation of two data sources, do the next:

- Open the view **Data Sources**;
- Press **Relation** at the top.

The created relations are displayed in the view *Data Sources* inside of categories with names of first and second data sources and marked by green color.

3.5.3 Settings

- Section **First Data Source**;

  Sets the parameters for the first data source in the relation.

  - Field **Data Source**;

    Choose name of a data source from which the relation with second data source is being set.

  - Field **Data Processing**;

    Choose name of a documents data processing in order to set the relation from its data strings instead of the documents of the data source.

  - Field **@ Main Expression**;

    The expression computes values for the right part of selection formula of the method NotesDatabase.Search after the equal sign "=" which will be called at reporting to select the documents to second data source of the relation for the purpose of their subsequent comparing with the values of the first data source in the relation. The equality between the computed values of the first and second data source means a relation of the data elements of the sources. If a data processing was chosen you can mark **Compute with KeyValue** in order to compute the values for data strings of the source (field *KeyValue*) instead of documents.

  - Fields **@ Add. Expression** (1 - 3) (optional).

    Type an expression to compute the result which will be compared to the result of the expression typed in the similar field of second data source at reporting. The comparing will be applied after setting a relation by *Main Expression*. The equality of the expressions results will mean the relation of data elements of the first and the second source. If a data processing was chosen you

can mark **Compute with KeyValue** in order to compute the values for data strings of the source (field *KeyValue*) instead of its documents.

- Section **Second Data Source**;

  Sets the parameters for the second data source in the relation.

  - Field **Data Source**;

    Choose name of a data source with which the relation from the first data source is being set.

  - Field **Data Processing**;

    Choose name of a documents data processing in order to set the relation from its data strings instead of the documents of the data source.

  - Field **@ Main Expression**;

    The expression is pasted into the left part of selection formula of the method NotesDatabase.Search before the equal sign "=" which will be called at reporting to select the documents for the second data source in the relation. For details see the description of the field in the section *First Data Source* above.

  - Fields **@ Add. Expressions** (1 - 3) (optional).

    See description in the section *First Data Source* above.

- Field **Relation Name** (optional).

Type a name for the relation, if you plan to create more than one relation for the two data sources. A user can choose what relation he wants to apply in a report.

The relation described in the settings document is oneway only: from first data source to second.

3.6 Processing of documents data

3.6.1 Description

Data processing allows to perform a processing of data from a document before they are placed into a report and becomes an additional data source for a reporting with its own attributes and relations. A data processing consists in computing of a data string or array of ones for a document. Depending on formula of computing a data string, by result of applying the data processing of documents can become either their detailing or integrating. The resulting array of data strings will contain only unique values and each such string will match to single document in database on which the string was computed. You can use document fields for computing the attributes and relations of data processing.

Documents Detailing

The detailing may be useful if a document of a database contains several data items and you want to use each of the items separately at a reporting. According to the data processing formula, each document at a reporting will be divided into several data strings, each of which contains the one data item of source document.

Documents Integrating

The integrating may be useful if documents contain the same data part and you want to use this part as data item at a reporting. A formula of data processing at reporting must compute the string whose equality in documents will mean their merging to the one data item for a report.

3.6.2 Adding

To create a documents data processing for a data source, do the next:

- Open the view **Data Sources**;
- Select the settings document of data source whose documents require the detailing;
- Press **Data Source \ Processing of Documents Data** at the top.

The created settings documents are placed into the category with name of the data source and are displayed in the view as grey rows.

3.6.3 Settings

- Field **Name**;

  Type a name for the documents data processing that is understandable for an user.

- Section **Computing of Processing**;

  The setting defines how a data string for a document at reporting will be computed. The result of the computing (a text) will be written in the field *KeyValue* which you can link to when setting up attributes and relations for the data processing.

  - Field **@ Formula**.

    Type an expression in Formula Language to compute a string or strings of data for a document in a database.

- Section **Selection Parameters**;

  Create selection parameters if it's required. The selection parameters for documents data processing can only add the ones of parent data source, but not overwrite them. The parameters can be only of one type: *Condition for Selected Documents*. The condition must be typed in relation to the field *KeyValue* with value of computed data string. In the settings document of a selection parameter you should choose a data processing name just below the data source name.

- List **Available Attributes**.

  Define the data source attributes which a user can choose as a column value when he had applied the documents data processing.

Attributes

Besides the available data source attributes you can create own attributes for data processing. The values for such attributes will be computed from data strings for a document (field *KeyValue*). To create an attribute you should choose a data processing name just below the data source name in the attribute settings document. A user can choose the data processing attributes as well as available data source attributes at a report column setting.

Relations

If you want to relate documents of a data source and strings of a data processing (or vice versa) at a reporting, you should create the relation settings document. Choose there a data processing name just below name of first or second data source in the relation. If you want to create a relation of two data processings choose their names under the both data sources.

3.7 Keywords

Reserved keywords

Use the reserved keywords when you are filling some fields in a settings document that require typing an expression in Formula Language. Values for the keywords will be assigned at a report configuring by a user. See the keywords description in the table below.

Keyword	Usable area		Value
	Settings document	Field	
KeyServer KeyFile	Selection parameter	List of Possible Values	*KeyServer* is the server name and *KeyFile* is the file name of a database chosen by a user in a data source at report configuring.
	Attribute parameter	List of Possible Values	

Own keywords

Besides reserved keywords, you can use own ones. Use parameters names of an attribute as own keywords when you are typing an expression in Formula Language in the specified field of attribute settings document.

Keyword	Usable area		Value
	Settings document	Field	
Parameter name	Attribute of data source	Value with Parameters	Parameter values chosen by a user at table column configuring of a report.

4 Reports Structures

4.1 Description, adding, copying

Description

The reporting in the application Reports Wizard is based on the concept of Report Structure. A report structure consists of data sources and their columns. Each data source in a report has its selection rules of documents from a database and lets you set up additional rules. Also a data source has attributes which can be chosen as its column value. The columns of all data sources in a report together form up the report columns. The settings of data sources as well as of their attributes and relations which you can choose in a report are performed by the application administrator.

The creating a report in the application consists of the two steps:

- Choose data sources for the report;
- Add columns for each data source.

A report structure consists of properties documents of the three types: report, data source and column.

Adding

To create a report structure, do the next:

- Create the report properties document;
- Create data source properties documents for the report;
- Create column properties documents for the data sources.

Copying

Besides creating a new report structure in the application, you can copy an existed one. You can make a copy of your report structure or of other users if they grant you such access. After a report has been copied you become the owner of the structure and can change all its elements. To copy an existing structure, do the next:

- Open the view **Reports**;
- Select the properties document of report whose structure you want to copy;
- Press in the view **Report Structure \ Copy**.

4.2 Sync of Application

When you are creating or changing your report structures as well as building reports in the app Reports Wizard you use its local replica. Perform sync with the replica on server if you want to make the done reports settings available to other users. At the same time you receive the reports settings done by other users if they have done sync earlier. Also the app sync is required if you want to receive the settings done by the app admin. It may be settings of data sources, their attributes or relations which you might use in your reports. The reports data saved in the application aren't being transferred at the app sync.

To sync the app with its replica on server, do the next:

- Open the view **Reports**;
- Press **Synchronize \ Receive and Send Settings** at the top.

Wait for the ending of sync, its duration depends on count of transferable changes.

4.3 Deleting

To delete a report structure, data source or column, you should remove its properties document in the app. If you remove a report properties document, all data sources and columns related to the report will

be removed too. If at removing a column the columns to the right from it will be found in the report structure, you will be suggested to refresh their numbering and formulas in computing columns.

To remove a properties document in a report structure, do the next:

- Open the view **Reports**;
- Select a properties document which you want to remove;
- Press key *Delete* and confirm the removing.

If you want to see the data sources of a report in the view *Reports*, select in the view the report properties document and then press key "+". Similarly press key "+" on a data source document to see its columns in the report. To see all properties documents in a report structure, press key "*" on the report properties document.

When you removing properties documents on your computer locally you only mark them as removed. Real removing of the documents from the app will be done on server later. For that you should sync the app after a properties documents removing in local replica.

4.4 Report properties

4.4.1 Description and adding

Description

A report structure includes the one report properties document. The document is required for viewing and setting up the common properties of a report and for doing some actions.

In a report properties document you can:

To view

- The data sources and columns in the report structure (tab *Structure*);
- The report data created at a reporting (tab *Data*).

To set up

- The common reporting period for data (tab *Reporting Period*);
- The schedule for a reporting on server (tab *Schedule*);
- The report owner and access level for other users (tab *Administering*);
- The report data exporting properties (tab *Export of Data*);
- The properties of contextual reporting (tab *Reporting from Databases*).

To perform

- Adding a data source;
- Local reporting;
- Viewing and exporting saved report data.

Adding

To create the properties document of a report, do the next:

- Open the view **Reports**;
- Press **Report Structure \ Create** at the top.

The report properties document will become the main in the structure hierarchy.

4.4.2 Structure

On the tab *Structure* of a report properties document you can set up the initial properties for the report.

- Field **Report Name**;
  Type a name for the report.
- Field **Report Description**;
  Type a text. It can be useful when choose the report from list of ones for a reporting, data exporting or other actions.
- Section **Report Structure**.
  Shows the data sources and the columns of the report.

The hierarchy of data sources is defined by their relations in the report structure. In the top the first level data sources are shown, all other ones are shown under them. Under a data source are shown its columns. Check the **List of Columns** if you want to see all columns of the report as a list sorted by the column number. To the right of number and name of a column will be shown the data source name which it belongs to.

A double click on a data source name or a column name in the list opens its properties document. To delete a data source or a column from the report, select its name in the list and then press the key *Delete*.

4.4.3 Data

On the tab *Data* of a report properties document you can view the data of the report saved as documents Notes at reporting. The reporting can be done locally or on a server as scheduled.

The report data of each done reporting are displayed in the category with the name of user that has done the reporting, as well as with the date/time of the reporting. This info is the ID of a reporting that has been done. Select and expand a category to view the data table of a reporting. Is there is a data grouping, select the row with a data group and press key "+" to view rows in the group. Also press key "+" to view rows in a subgroup if it exists.

A transition from a data row is available. Make a double click on a data row if you want to find and to open the database document which is a data source for the row, or you want to open the other report's row which also uses the document. Choose what you want to open and press OK. If you open a database document, choose from list the data source name matched to the document in case the row has more than one data source, and press OK. If were used more than one document of the data source in the row, will be opened an only one. If you open an other report's row with the same source document, also choose the data source name and then choose a reporting ID. The row will be opened in a new window.

4.4.4 Reporting period

On the tab *Reporting Period* you can enable/disable of applying the reporting period to data as well as set up start/end dates of the common reporting period. This matters only for a report with special columns to the values (the type *Date*) of which will be applied a reporting period. A reporting period affects the documents selection for a data source at a reporting: only documents whose columns values are in the date range of the period will be selected.

Besides the common reporting period, you can use special periods. The dates of a special reporting period are set up in column properties and are applied to its value only. The common reporting period is ignored for the columns.

Before enable of a reporting period, you should define the report columns to values of which will be applied it and set up some properties for them. To enable a reporting period, do the next:

- Option **Apply Reporting Period**;
  Check the option to apply a reporting period for data at all, as the common as well special ones.
  - Option **Set Dates at Reporting**;
    Check that a user could set the dates of reporting period each time at reporting.
  - Field **Start Date**;
    Choose or type a date as beginning of the common reporting period.
    - Option **Current Date**;
      Check to apply the current date as start date of the period.
    - Option **Don't apply date for documents selection**.
      Check to use start date of the period only for computing values and colors of columns in the report.
  - Field **End Date**.
    Choose or type a date as ending of the common reporting period.
    - Option **Current Date**;
      Check to apply current date as end date of the period.
    - Option **Don't apply date for documents selection**.
      Check to use end date of the period only for computing values and colors of columns in the report.

If you want to stop the applying of any reporting period for data, uncheck the option *Apply Reporting Period*.

Section **Columns for Reporting Period**.

Here are displayed the report columns to values of which will be applied a reporting period. Each column is under its data source by default. Check the **List of Columns** if you want to see all the columns as a list sorted by the column number. To the right of number and name of a column will be shown the data source name which it belongs to.

4.4.5 Schedule

On the tab *Schedule* of a report properties document you can set up properties for a reporting on a server. Report data created on a server can be got by you into the application *Reports Wizard* or exported into a file for storing on the disk or for e-mailing to recipients. You can set up a schedule to perform periodic reporting on a server or to perform the reporting at a special time for the purpose to free your computer from the task.

You can set up a reporting schedule only if you are the report owner and the role *SetSchedule* has been granted to you in the application access control list. The name of user that is the report owner, you can view on the tab *Administering* of the report properties document.

To set up the schedule of reporting on server, do the next:

- Option **Reporting**.

  Choose a periodicity of reporting on server. A reporting will be occurred at the day and time specified here. Checking of requirement to build report data is performed on a server every hour all day.

  - Choice **Monthly**;

    Mark month's days and time of a reporting below.

  - Choice **Weekly**;

    Mark week's days and time of a reporting below.

  - Choice **Daily**.

    Mark the time of a reporting below.

If you want to stop a reporting on server, mark **Don't perform** in the choices.

If is chosen a periodicity of reporting, you can set up the additional properties below.

Section **Perform reporting for each value of selection parameters**;

In the section are set the selection parameters of data sources (up to two) to perform scheduled report build for each value of a selection parameter. If you choose the second selection parameter its values will be set for each value of the first parameter. You can use a current value of a selection parameter to compute the full name of file for exporting report data as well as comment for notice.

- Field **Data Source**.

  Choose a data source containing the selection parameter whose values you want to finger.

  - Field **Selection Parameter**.

    Choose a selection parameter whose values you want to finger.

On the right you should set what values of the selection parameter will be fingered.

- Choice **Choices in the data source**;

  Check below **Refresh choices before build** to refresh the values of parameter each time at scheduled reporting. If data sources of the first and of the second selection parameter coincide, the getting of values for the second parameter will be done with taking into account a current value of the first one.

- Choice **Chosen values in the data source**;
- Choice **Chosen values here**.

  Below choose or type the values of the selection parameter.

Section **Export and Send**;

- List **Perform Export to**;

  Choose the export types that will be performed at report's building on server.

  - Choice **Notes Documents**;
  - Choice **MS Excel File**;
  - Choice **Tidestone F1 File**;
  - Choice **HTML File**.

- Field @ **Folder and File Name**;

  Type in each of two fields an expression in formula language to compute the full name of file for data export at scheduled reporting. If the values of selections parameters are fingered (see section above), to use a current value of the first parameter you should type in an expression *Value1* and a current value of second one - *Value2*. If file name does not contain an extension it will be added depending on an export type.

- Option **Attach data file to document**;

  Check the option to export report data to a file, which will be attached to a result document of reporting on server. Allowable only if an export to file is checked above.

- Option **Notify of ending reporting by e-mail**;

  Check the option that the notification message that a reporting on server has been done, will be sent. If the report wasn't built successfully, the problem description will be added to the message.

  - List **Recipients**;

    Type or choose e-mail addresses of the notification messages recipients.

  - Option **Attach data file to message**;

    Check the option that a file with data will be attached to a notification message. If report data wasn't exported into a file successfully, the trouble description will be added to the message. Allowable only if an export to file is checked above.

- Field **@ Comment.**

  Type an expression in Formula Language to compute a text for the message. You also can use *Value1* and *Value2* in the expression to refer to the current values of selection parameters (see field *@ Folder and File Name* above).

- Option **Delete data file from disk**.

  Check the option to delete data file after its attachment to document or sending by e-mail.

Section **Results of reporting on server**.

In the section are displayed the rows each of which contains date and time of a report's building on server. Double click on a row opens the reporting result document. Besides date and time, in the document you can view either message about the successful reporting on server or description of the trouble because of which the reporting wasn't done successfully. Also the document can contain the file with the report data if you have checked the option *Attach data file to document* above.

4.4.6 Administering

On the tab *Administering* of a report properties document you can set up access level for other users to the report structure and data. On the tab is displayed the name of user that is the report owner. Only the user as well as the application administrator and users with special access level in the application can change the report structure. By default, the report structure creator becomes the report owner and can be changed by an administrator only.

- Option **Apply Access Lists**.

  Check the option if you want to restrict or grant the access levels to other users to the report.

  - List **Restrict access to read report structure down to**;

    Only the users chosen in the list can view and copy the report structure as well as perform reporting on their computers. The list restricts the access. If the list is empty all users will have the access level.

  - List **Expand access to change report structure up to**;

    The users chosen in the list can change the report properties document as well as the properties document of data sources and of columns of the report. The list grants the access. If the list is empty only the report owner will have the access.

  - List **Permit to import report data from server**.

    The users chosen in the list can import the report data, created at a reporting on server, into the application Reports Wizard on their computers. The list grants the access. If the list is empty only the report owner will have the access level.

If you want to stop differentiating the access levels to the report, uncheck the option *Apply access lists* at the top.

4.4.7 Export of Data

On the tab *Export of Data* of a report properties document you can set up the export properties for data created at a reporting. A data export can be done for the purpose of their viewing, editing or storing in a file. In the application are available the three export types into file: with using the program MS Excel, the program component Tidestone F1 and HTML. On the tab are set up properties for all three types.

- Fields **@ Folder and File Name**;

  Type into each of two fields an expression in Formula Language to compute the full file name at local reporting for the cases when file saving is required. Such cases are: the applying a file with table template (folder only), export of data of several reports into an one file, a exporting into HTML. Type a text in commas, for example *"my_report"*, or type an expression in Formula Language to compute the text, for example *"my_report_" + @Text(@Today)*. If file name does not contain an extension it will be added depending on export type. If you experience a difficulty, contact the application administrator.

- Option **Transform formulas to export format**;

  This matters only if in the report are computed totals or/and the report has computed columns. Check the option to keep formulas in the report table and to transform them to the format of a program to which report data are exported. If the option hasn't been checked (by default), the columns values will be exported. Below define the combinations of rows and columns of the report to which the option will be applied.

- Option **Separate rows for first level's totals in bottom**;

  Check the option to display the columns of a row with subtotals of the first level by separate row below data. By default all subtotals in a data table are displayed above data.

  - List **Move in totals row the columns**;

    Choose or type the numbers of columns to move them into bottom subtotals row.

  - Option **Keep the columns when moving**;

    Choose or type the numbers of columns which should be displayed at the same time in top and bottom subtotals rows.

  - Fields **Paste text into column**;

    Type a text and number of a column (in a bottom subtotals row) which the specified text will be pasted into.

  - Option **Row color**.

    Choose a color for the bottom subtotals rows.

Section **Filling Empty in Table**;

The options in the section set up filling empty cells in a table row with values of other cells what may improve the view of table. The option affects only cells whose emptiness is result of column absence for a data source used in the row.

- Option **Merge single row in group with group's row**;

  Check the option to merge the single data row in a group with the row of the group in table. The option allows to reduce count of rows in data table. Below specify the list of data sources and their groups to which the option should be applied.

- Option **Fill empty cells by values from above**;

  Check the option to fill the empty cells in a column of data table by value from the first nonempty cell that is placed above in the column.

- Option **Fill empty cells by values from left**;

  Check the option to fill the empty cells in a row of data table by value from the first nonempty cell that is placed at the left in the row.

For the last two options in the section choose a method of filling empty cells for the each option. The method **Merge Cells** (by default) means that a empty cell will be filled up through merging with a filled cell, the method **Copy Cells** - through copying the one.

For all three options in the section you can define the list of data sources and their groups which the option will be applied to.

Section **Table Settings**;

In the section you can set up the properties for the table of report data.

- Option **Use Template for Table**;

  Check to apply the properties of a template to the table of report data at a exporting. The template may be a table of the format MS Excel (.xls) or Tidestone F1 (.vts). The template will not be applied when exporting to HTML. Attach a file with template in the field **Tempate File**. A file of the format MS Excel (.xls) can be used for the both export types, but a file of the format Tidestone F1 (.vts) for exporting to Tidestone F1 only. For temporary placing the template file on disk will be used the folder specified in the first field of the group *Folder and File Name* above.

- Option **Insert report name before data**;

  This matters only if you don't use a table template. Check to paste the report name into the row above the header of data table.

- Section **Data Table**.

  Type in the fields **The First Row** and **The First Column** a row number and a column number which will become the first for report data in table. Thus, you can move report data down or/and to the right in table. In the field **Max Columns Count** type a number if you want to restrict the columns count in table from the first one at the left. The number 0 (by default) means export of all report columns.

Section **Pasting Text into Table**.

In the section you can set up the properties for pasting a text into various areas of table after its filling with report data. A text can contain computing tags. Press the button **New Text** to add a text for pasting.

- Option **Pasting Method**;

  Choose how the text will be pasted into table.

  - Choice **Replacing Text in Table**;

    Choose the method to find a text in all table and replace it. Type into the field **Find Text** a text which will be found and replaced.

  - Choice **Specify Cell**;

    Choose the method to paste the text into a cell by its row and column number in relation to beginning of table. Type into the fields **Row Number** and **Column Numbe**r the two numbers.

  - Choice **Specify Cell in Bottom**.

    Choose the method to paste the text into a cell by its row number in relation to the last row with report data and by its column number in relation to beginning of table. Type into the field **Row Number** and **Column Number** the two numbers. The number 0 in the field *Row Number* means the last row with report data in table.

- Option **Text Type**;

  Choose what text will be pasted into table.

  - Choice **Text with Tags**;

    Means the pasting a text which can contain computing tags.

  - Choice **Formula of Export Program**;

    Means the pasting a formula in the format of an export program. Use the format R[1]C[1] for MS Excel and R1C1 for Tidestone F1 with the symbol "=" at the beginning. If you have chosen *Specify Cell at the Bottom* in the option *Pasting Method*, a formula will be computed in relation to the last row with report data.

  - Choice **@ Formula**.

    Means the pasting the result of computing an expression in Formula Language. Type the expression below.

  - Field **Text for Pasting**;

    Type a text according to the type chosen above. For the type *Text with Tags* you can choose tags from the list **Tags**, to append a chosen one to the text press the button **Append Tag**. The tags in the text will be computed at a text pasting into table.

To add the done setting to the settings list of text pasting, press the button **Add to Settings**. To cancel it, press the button **Cancel**.

- List **Settings for Text Pasting**.

The list contains all done settings for pasting of text into table. A row in the list contains the setting in either of four formats described below.

The replacing a text in table:

0 | *text to find* | *expression*

The pasting a value into cell in relation to beginning of table:

1 | *row number* | *column number* | *expression*

The pasting a value into cell in relation to last data row in table:

2 | *row number* | *column number* | *expression*

The deleting of rows # i, j, … and columns # n, m, … in table:

3 | *Ri Rj ... Cn Cm ...* | *expression*

Where *expression* for all types of paste except the type *Formula of Export Program* means an expression in Formula Language. By default an expression is being computed on the header of data table but you can type the extended format *Rx expression*, where *Rx* means the using of column values of data row with sequence number *x* (*R1* - the first row, *R2* - the second row etc.). To use in an expression the value of column with sequence number *y* type in the expression the field name with the column value - *Cy* (*C1* - the first column, *C2* - the second column etc.). In the case of the deleting of rows / columns an expression must be an condition with computed result *@True* (1) to perform the deleting.

You can change or delete a setting in the list. If you experience a difficulty, contact the application administrator.

4.4.8 Reporting from databases

On the tab *Reporting from Databases* of a report properties document you can set up the properties in order to build the report when you are in a database either for a opened document or for selected documents in a view, as well as in the absence of the contextual documents. In order that a contextual reporting could be possible at all, some settings in the application IBM Lotus Notes are required. The settings should be performed by the application administrator and the result of it is a button that displays the list of reports which could be built from your current placement in a database. The setting defining the placements in a database from which the report is available for building, should be performed on the tab.

- Option **Allowable Reporting**;

  In the section you can either permit or restrict of building of the report from databases. Check the reporting types which you want to permit.

  - Choice **Contextual**;

    Permits a contextual reporting from databases for an opened document or selected ones in a view. At a contextual reporting the selected documents will be used for the documents selection for the first level data source with applying its properties.

- Choice **Non Contextual**.

  Permits of building of the report building from databases as-is, that is, not for an opened document or selected ones in a view. The choice could be useful if you want doing a reporting in a database as if you do it in the application Reports Wizard.

The properties below are matter only if you permit at least a one type of reporting in the option *Allowable Reporting* above.

Section **Reporting is available from**.

- List **Databases**;

  Choose the names of databases from which will be possible to build the report. The databases chosen here don't replace the databases that are chosen in the data sources of the report.

The properties below are matter only if you have checked *Contextual* in the option *Allowable Reporting* above.

- List **Documents Forms**;

  Choose or type the forms names from which will be possible to build the report in a database. You should specify either the form matching to the first level data source in the report or the forms matching to the data sources which a relation to the first level one in the report exists from.

  - List **Data Sources of First Level**;

    Make a choice if you want performing contextual reporting only for the chosen data sources of first level but not for all. Data of first level's data sources not included in the list will be selected into the report non-contextually.

  - Button **Check forms list and set the parameters**;

    Press the button to check correctness of chosen forms and set up contextual reporting for them.

  - Option **Apply condition of report availability for building**;

    Check the option if you want to operate displaying of report in the list of allowable for building. The option is applied only for an opened document in database and isn't applied for marked ones in a view. Below type a condition in Formula Language that will be computed with the fields of a contextual document.

  - Option **Compute project of first level's data sources**.

    Check the option if you want to compute the project name for first level's data sources which a project isn't chosen in. The computed name must be listed in settings Path chosen in the data sources. The option is applied only for an opened document in database and isn't applied for marked ones in a view. Below type an expression in Formula Language that will be computed with the fields of a contextual document.

- List **Views**.

  Choose or type the names of views from which will be possible to build the report for selected documents in it. The documents in the views should have a form from the list *Documents Forms*

above. You can type either the full name of a view or a part of the name beginning from the left and until any grouping symbol "\" in it. If you use a part of name, the report will be available from all views of the group of ones.

4.5 Data sources

4.5.1 Description and adding

Description

The properties for a data source of a report are contained in the properties document for it. A data source properties document allow to define what part of documents in a database will be used in the report as well as to set up relations with other data sources of the report. The available data sources for a report and their relations depend on the settings done by the application administrator.

Adding

To add a data source to a report, create the data source properties document in the report's structure.

To create a data source properties document, do the next:

- Open the view **Reports**;
- Open the properties document of the report to which you want to add the data source;
- Press **Add Data Source** at the top.

The created properties documents will become child to the report properties document and will be displayed in it on the tab *Structure*. Also you can see the data sources in the view *Reports*, if you select the report properties document and then press key "+" or press key "*" to expand the report structure.

4.5.2 Properties

The properties of a data source you can set up in its properties document in the report structure. The properties document of a data source is separated into three tabs: *Main*, *Selection Parameters* and *Columns*.

Tab **Main**.

- Field **Data Source**;

  Choose a data source for the report from the list. The list of available depends on settings done by the application administrator. A data source defines the data items for report. If a data processing below isn't chosen, by a data item is become a document in database, otherwise is become a data string computed with fields of a document in database.

- Field **Data Processing**;

  This matters only if exist data processing settings for the chosen data source that have been done by the app administrator. It's may be either documents' detailing or documents' integrating. Choose the name of a documents' detailing to divide data from a document into parts according to settings and use each such part instead of whole document as the data source for the report. Otherwise, if

you choose a documents' integrating, more than one document may form a one data item of the data source.

- Option **Add Rows into Report**;

  Check the option to place each data item of the source in new row of the data table. Otherwise the data items will be used only to compute totals in rows of groups or in related rows of other data sources without adding own rows into table.

  - Option **Rows Color**.

    Choose a color for rows with data of the source. It would be useful if you want to distinguish visually data sources in the data table. A color for a column of the data source you can set up in the column properties document.

- Field **Position in Level**;

  Choose or type a number to define the order of processing data sources of the same level before placement of their data in report. The related data sources of different levels are processed consistently since the data source of first level (without relations).

- List **Relate to**;

  Check one or more names of other data sources in the report to relate the data source to them. The option means that data items of the data source will be placed in the report under the data items of the other data sources chosen in the list *Relate to* if a relation between items of the related data sources will be detected at the reporting. By default if the list *Relate to* in a data source isn't empty and a relation from its elements at least with one element of the data sources selected in the list will not be set, such items of the data source will not get to the report. The possibility to relate data sources each to other depends on settings done by the application administrator.

  - Option **Becomes data source of first level if relation will not be set**;

    Check the option if you want that the elements of the data source will become the first level in the report if a relation with at least one of elements of other data source was not set. If the option isn't checked such data elements will not get to the report.

  - Option **Apply relations only once**;

    Check the option if you want that an element of the data source was related only with a one data element of other data source. The setting up all other relations will be skiped.

- Option **Existence of relations from other data sources is necessary**;

  Check the option to exclude an element of the data source if a relation with it from elements of other data sources will not be set. Below choose the list of other data sources of the report in which the data source is chosen in the list *Relate to*. If are chosen more than one data source a relation must be set with element of each one.

- Option **Apply final condition for passing a data row to report**;

  Check the option to manage the selection of a data row to the report thru condition. Below type a condition in Formula Language with column values of row (access to column value thru Cn where n

is column number). The condition is applied for rows of data elements and isn't applied for rows of data groups.

Tab **Selection Parameters**.

- Option **Use documents of other data source in report**;

  The option matters only for a data source of the first level (a value in the list *Relate to* isn't chosen) at presence in the report of data source with the same name. If the option is checked the documents selection in database for the data source will not be performed but will be used the documents of the other data source in report which should be chosen a bit below the option.

The options of the tab that are described below are available only if earlier hasn't been checked the option *Use documents of other data source in report* described above.

Section **Databases**;

Choose names of databases to select the documents from them for the data source of report. You also can leave the list empty. For data sources of first level (no relations) it means choosing names of databases each time when the report is being built. If the list was left empty in a data source of not first level (with relations), the setting the names from data source which a relation is set with in the report will be tried at the reporting. At contextual reporting from a database the empty list for a data source of first level will call the try to set the name of the contextual database. When an unsuccessful try of automatic setting the names of databases at reporting occurs a user will be prompted to choose them yourself.

Section **Documents Selection in Databases**.

In the section the selection parameters of the data source are placed. Each such allows setting up additional selection of documents in a database for the data source. The allowable parameters for a data source and lists of possible values for them as well as how a parameter affects documents selection in a database depend on settings done by the application administrator.

For each of eight selection parameters of data source you can the next properties:

- Field **Parameter**;

  Choose the name of a selection parameter from the list. An each selection parameter can affect the documents selection in database. The list of selection parameters available for a data source and how they affect the documents selection is defined by application administrator.

- List **Values**;

  Choose or type the values for the selection parameter. If the list of possible values for the parameter is empty you will be prompted to press the button *Refresh Choices* near.

- Button **Refresh Choices**;

  Press the button to get list of possible values for the selection parameter if it is provided by application administrator. If the values list is formed from documents of databases you must choose the databases above before pressing the button. The parameter values will be got with taking into

account the already adjusted values for other selection parameters on the tab. To save the lists of possible values for selection parameters you should save the data source properties document.

- Option **Choose at Reporting**;

  Check the option to adjust the parameter and values for it each time at reporting.

- Option **Paste Contextual Values**.

  The option matters only at contextual reporting for an opened document or marked ones in a view of database. Moreover, the list of possible values for the parameter must be created by the method of getting them from documents of database (the setting of selection parameter). When these two conditions are performed the values list will be computed for the contextual documents and pasted as values of the selection parameter to display them at reporting. Thus you can either leave the list without changes or reduce it to affect documents selection but can't add new values.

- Option **Include** / **Exclude**;

  Make a choice to apply either of a rule or of its negative to select documents in database. The documents selection rule itself for a parameter is defined by application administrator.

- Option **Apply parameter's values of other data source**.

  Check the option if you want to apply the parameter values of other data source in report. The option can be useful for data sources of first level (no relations) to avoid the repeated setting of selection parameters for them. Below choose a parameter of other data source in report whose values will be applied for the parameter.

If you have chosen a data processing on the tab *Main*, here could appear the selection parameters applying to the processing. The parameters will be applied after documents selection parameters and the computing the data strings from them for report.

Tab **Columns**.

On the tab the report columns corresponding to the data source are displayed. Here you can create new or open an existing properties document of column.

4.6 Columns

4.6.1 Description and adding

Description

Each report column is defined by the column properties document. In a report structure the properties documents are child to the properties document of the source the data of which will be used in the columns values at a reporting.

Adding

To add a column to a report structure you should create the column properties document. Do the next:

- In the report structure open the properties document of a data source, documents data of which you want use in the column value;

- Press **Add Column** at the top.

After saving, the column properties document becomes child to the data source properties document and will be displayed on the tab *Columns* in it. Also the columns you can see in the report properties document on the tab *Structure* as well as in the view *Reports* if you select the report properties document and then press "*" to expand the report structure.

4.6.2 Properties

The properties for a report column you can set up in its properties document in the report structure. The properties document of a column is separated on the tabs: *Main*, *Additionally*, *Totals*, *Color* and *Export*.

Tab **Main**;

- Field **Column Number**;

  Type a number as sequence number for the column in the report table. You can type more than one numbers separated with semicolon to apply the properties to several columns of the table at once.

- Field **Column Name**;

  Type a text as the name for the column that can be displayed in the table header. It is possible not to fill the field at first but to copy to it the data source attribute name which you going to choose as the column value below.

- Option **Computed Column**;

  Check the option to compute the column value using other ones in the table row or by another method. You should define the method of computing below.

  - Option **Type and Object of Applying**;

    Make a choice to define type and method of applying of typed formula below.

    - Choice **Numeric Operations with Table Columns**;

      Check the method to compute the column value using other ones in the table row with referencing by their numbers. As a reference use the format *[n]*, where n is a column number. For example, *[1] + [2]* means the column value is the sum of values of the first and the second column in the report table. The relative referencing is allowed: *[0]* is the value of the current column, *[0-n]* is the value of column distant n ones from the current column to the left and similarly *[0+n]* to the right in the table row.

    - Choice **Formula of Export Program**;

      The formula will be pasted into a cell "as is" to compute its value in an export program. The syntax of the specified formula must match to an export program that will be chosen.

    - Choice **@ Formula with Table Columns**;

      Choose the method to compute the column value using other ones in the table row by applying an expression in Formula Language. The expression will be computed for the document Notes representing a table row of the report in the application *Reports Wizard*.

The value of a row column is contained in the document field with the name Cn, where n is the column number. For example, *@Text(C1 + C2) + "abc"* means the column value is sum of values of the first and the second column with converting the result to a text and then appending to it the string "abc".

- Choice **@ Formula with Document Fields**.

  Choose the method to compute the column value using the fields' values of a database document. The expression in Formula Language will be computed for each of selected documents for the data source. Thus you should know the fields' names and their senses in a database document. Use the method in the absence of the suitable data source attribute which you would choose as the column value.

- Option **Add dates of reporting period into fields D1 and D2**;

  It matters only if reporting period is applied and the method *@ Formula with Table Columns* is chosen. The both dates of start and of end of reporting period will be added into the fields D1 and D2 of the document representing a data row of report that you could use the dates to compute the column value. If the option is checked, in expression for the column except values of other row columns (fields C1, C2, ...) you also can use the dates of reporting period - field D1 and D2.

- Field **Expression**.

  Type an expression to compute the column value according to chosen above method.

- Option **Attribute**;

  This matters only if you haven't check *Computing Column* above. Choose an attribute of the data source to use it as the column value. The list of available attributes depends on settings done by the application administrator. After the choice has been done, you can press **Add to Name** just below in order to append the name of chosen attribute to the column name.

- List **Column Only for Relations**.

  This matters only if the data source is related to more than one in the report structure. Also the column should not is computing, excepting the method *@ Formula with Document Fields*. The column value will be computed only for documents of the data source which have a relation to chosen here data sources.

Below on the tab you can set up values for attribute parameters if they are exist. The parameters can affect the result of computing the column value. At first choose a parameter and then set up a value for it. Availability of parameters for an attribute depends on settings done by the application administrator.

Tab **Additionally**;

- Option **Group**;

  Check the option if you want to group table rows by value in the column. Multilevel nested rows' grouping is available. For creating group of each level can be used one or more columns of a data source. If a data source is related to other, group rows will be created under the row which the

relation is set to. The rows of different data sources not related to other one or related to the same in the report structure will have the common groups in case their values are equal.

- Option **Column Only for Group**;

  Check the option in order that the column value will be displayed only in the group but not in rows under the group in the table.

- Field **Group Level**;

  Choose a level from 1 to 5 for the group. Each a next level will become nested for a previous one. You can choose the same level for more than one column of a data source if you want their values in the row to create the group.

- Option **Group Color**;

  Choose a color for the group level if you want to mark visually group rows in table. If the same level is chosen for more than one column, to set a color in any one of them is enough.

- Option **Don't create group if value in the column is equal to**;

  Check, if you don't want to create the group at certain values in the column of a data row of report. List the values of the column by one in new line below.

- Option **Sort**;

  Check the option if you want to sort rows in table by the column values. For multiple nested sorting, check the option in more than one column of the data source. To the right choose **Order** for the sorting from **Ascending** and **Descending**.

- Option **Use column values as dates of reporting period**;

  This matters only if the column isn't computing excepting the method *@ Formula with Document Fields* (see option *Computed Column* on the tab *Main*). Check the option if you want to check a column value for being in specified date range (reporting period). Only documents with the column value lying within the reporting period will be selected for the report. A value of the column should be a date. The common reporting period is set up on the tab *Reporting Period* of the report properties document but you can also set up special one for the column below.

- Option **Use column values as dates of reporting period without adding column**;

  The option works like described one above but the column will not be placed into data table of report.

The described below options are available only if one of two described above options was checked.

- Option **Select document when no date in the column**;

  Check if you want to select a document in the report in the absence of value in the column looking like date.

- Option **Special Reporting Period**.

  Check the option if you want to apply a special reporting period for the column. The special period overwrites the common one. Choose dates in the fields **Start Date** and **End Date** for

setting date range. The other options of the section are similar to that are presented on the tab *Reporting Period* of report properties document.

Tab **Totals**;

- Option **Summarize for Data Sources and Groups**;

  Choose data sources names or their groups for whose rows you want to summarize the column values. You can choose from data sources which are in the relations chain beginning from the nearest to the first level in the report. The result of summing will be the column value in the row of the data source or of its group to which is set the relation at a reporting. Choose **Total** for common summing for the column with displaying the result in the last table row at the bottom. Further choose a summing method.

  - Option **Column Only for Calculation of Totals**.

    Check the option if you want to use the column only for the summing for related rows of other data sources and their groups but not to compute the values of the column in row of the data source which the column belongs to. It may reduce the time of a reporting.

- Option **Type of Summing**;

  Defines how will be performed the summing for related rows of data sources and their groups chosen above.

  - Choice **Summarize as Number**;

    The method is default. Choose the method if you want to summarize the column values arithmetically. A column value should be either a number or a text representing a number. All another values will be summarized as zero.

  - Choice **Summarize into Text List**;

    Choose the method in order that the result of the summing will be a text list with column values. If a value is not a text, it will be converted to text for the summing.

  - Choice **Summarize as Text thru Separator**;

    Choose the method in order that the result of the summing will be a string with the column values separated by a symbol. Further in the field **Separator** choose such symbol.

  For the both methods described above, you can check the option **Unique Values** in order to summarize only unique values of the column which are not yet contained in the result. If a value is already contained in the result, it will be skipped.

  - Choice **Calculate Mean Value**;

    Choose the method if you want to compute average from the column values. A value of the column should be either a number or a text representing a number. All another values will be summarized as zero.

  - Choice **Apply Formula**;

This matters only if you have checked *Computed Column* and haven't chosen the method *@ Formula with Document Fields* on the tab *Main*. Instead of a summing of column values will be applied the expression to compute a column value using values of other columns in the summing row (see field *Formula* on the tab *Main*). The option allows applying the settings for computing of values of the column in the related row of other data sources or their groups, which you have chosen in the option *Summarize for Data Sources and Groups*.

- Choice **Apply Condition for Color**.

  This matters only if you check the option *Color on Condition* on the tab *Color*. Instead of summing of the column values will be applied the conditions for setting up a color for the column in a summing row. The option allows applying the coloring settings of the column, specified in the tab *Color*, to related rows of other data sources or their groups which you have chosen in the option *Summarize for Data Sources and Groups*.

- List **Propagate for Data Sources and Groups**.

  Choose the data sources and/or their groups whose data rows you want to propagate value of the column into. In the list are available only the data sources from which explicitly or thru cascade a relation in the report with the data source of the column has been set.

Tab **Coloring**;

- Option **Color**;

  Choose a color for the column. The color will be applied to all row of the data source by default. If you use a table template (see the tab *Export of Data* in report properties document) defined column color in the template will be overwritten by chosen here.

- Option **Color on Condition**.

  Check the option if you want to apply color to the column on a condition. Type up to 5 conditions using values of columns in a table row. Each following condition will be checked in case the result of previous one is *False*. If the result of any condition is *True* the conditions following it won't be checked. As reference to value of a column in a row use the format *[n]* where n is a column number. For example, *[1] > [2]* checks for condition that value of the first column exceeds the second. The relative referencing is allowed: *[0]* is the value of the current column, *[0-n]* is the value of column distant n ones from the current column to the left and similarly *[0+n]* to the right in the table row. You also can type here a condition in Formula Language, in this case as the reference to values of columns you should use names of fields of the document representing a table row of the report. A document field has the name *Cn* where n is a column number. For example, *@Contains (@Text (C1); @Text (C2))* means checking the condition of finding value of the second column in the first with conversion of both values to the text.

Tab **Export.**

The most of the properties on the tab matter only if you don't use a table template (see the tab *Export of Data* in report properties document). In this case you can set up the table properties here: **Width**,

Format, **Aligning**. Otherwise the properties of the column are defined by the ones in the row following the table header in the template.

5 Reports Data

5.1 Local reporting

In the app you can build a report whose structure was created by yourself or other users. The result of a reporting is data table, whose content is defined by the report structure. Except the exporting to file, you also can save the data of a report build in the application *Reports Wizard*. In this case a row of data table is stored in the app as the document *Notes* with fields according to the row columns. Besides it, such document contains info identifying the database documents from which data was extracted into the row, columns properties etc.

For local reporting on your computer, do the next:

- Open a report properties document or select it in the view **Reports**;

  In the view you can select more than one properties document to build several reports at once.

- In the top menu **Report Data...** make a choice:

  - Choice **Create and Export to...**;

    The choice means the reporting with further exporting of report data to a file at once. Further choose an export type: **MS Excel**, **Tidestone F1** or **HTML**. If you have chosen several report for building, define a method of placement of their data: **At Separate Files** (by default) or **At Separate Sheets of Single File**. If you have chosen the second method, in the next window you should confirm or change the path and name of a file to which will be exported all created data.

  - Choice **Create and Save in Application**.

    Choose to build a report and save its data in the application *Reports Wizard* as documents *Notes* to use them later. In this case the table with report data will be available for viewing and exporting to file at any time.

Wait for ending of a reporting, its duration depends on the report structure and count of database documents from which data are extracted for the report. At a reporting, the window with progress bars of data processing for each data source in a report is displayed. A reporting will be finished when 100% in progress bar for the first level data source is achieved.

5.2 Reporting on server

In the app besides reporting on your computer you can set up a schedule for reporting on server. For this, make sure the requirements are met:

- In the app the privilege for setting a reporting schedule on server have been granted to you;
- In report properties document on the tab *Administering*, you are chosen in the field *Report Owner*;
- You have set reporting schedule and done sync the app with server.

Depending on properties set up on the tab *Schedule* in report properties document, data after a reporting is done might be exported to a file for storing in disk or for e-mailing to recipients. The properties you set on the tab *Export of Data* in the report properties document. Also you can keep report data in the app on server as documents *Notes* if you want to receive them in the app on your computer at any time later.

5.3 Receiving from server

You can get report data from server in the app *Reports Wizard* on your computer after they have been created on schedule. At the getting, data will be copied to local replica and then will be available for viewing and exporting to a file. The function might be useful if you don't want to load your computer by a reporting. In order that the function was available for a report, on the tab *Schedule* in its properties' document you must set a schedule of reporting on server and choose the export of data into documents *Notes*.

To get report data from server, do the next:

- Open a report properties document or select ones in the view **Reports**;

  In the view you can select more than one properties document if you want to get data of several reports at once.

- In the menu **Report Data...** at the top make a choice:

  - Choice **Receive from Server and...**;

    The choice means the getting of data with exporting them to a file or viewing at once. Further choose an export type: **Export to MS Excel**, **Export to Tidestone F1** or **Export to HTML** if you want to export, choose **Show in Window** to view data only. If on server have been done more than one build of the same report you should choose the date and time of required ones.

  - Choice **Receive from Server**.

    The choice means the getting of report data from server without further exporting them to a file or viewing.

After the receiving from server, report data will be stored as documents *Notes* in the app *Reports Wizard* on your computer. You can view or export the report data to a file at any time until you will delete them.

5.4 Contextual reporting

The app allows you to perform a contextual reporting from a database of your *IBM Lotus Domino®* system. This means you can limit the report data by selected documents in a view or by opened document of a database. The contextual documents should match to the first level data source in report structure, that is, not related to any other data sources. Also it can be the documents matched to a data source not presented in the report structure but to which might be set a relation from the first level's data source in the structure.

To perform a contextual reporting, make sure the requirements are met:

- The app admin has done specified setting in a database in order that the contextual reporting from it become possible;

  The result of the setting should be a button or a menu item with icon of the app *Reports Wizard* in the *IBM Lotus Notes®* toolbar or in the views or documents of a database.

- You have set properties for contextual reporting in a report properties document on the tab *Reporting from Databases*;

- You have opened a database and view or document within it from which a report is available for building.

If three requirements described above are met, to perform a contextual reporting do the next:

- Open a database;

- Open a document or select ones in a view of the database;

- Press the button or the menu item with icon of the app *Reports Wizard*.

In the appeared window choose the name of a report which you want to build. If in the window aren't displayed reports names for choice, this means no one from reports is available for building from your current placement in the database. Try to change your placement according to contextual properties of the report or to change the properties. Empty table as the result of reporting indicate that the opened document or at least one from selected documents in the view couldn't become contextual for the report. Try to build the report for other documents in the database or change the report properties.

Besides contextual, you can perform non contextual reporting from a database. In this case opened document or selected ones in a view don't limit the report data, which will be the same as if you perform the reporting in the app *Reports Wizard*. It allows don't open the app for a reporting but to do it from your current position in a database. A report can be available for its contextual building as well as for non-contextual one at the same time. In this case contextual mode is active when a document is opened or documents are selected in a view of database, otherwise the non-contextual mode is active. Set up properties for contextual reporting required for you in the report properties document on the tab *Reporting from Databases*.

If the saving of report data as documents Notes is performed at the reporting they are being stored in the app *Reports Wizard* on your computer and will be available for viewing or exporting to a file at any time.

5.5 Viewing, exporting and deleting saved data

You may have the report data in the app *Reports Wizard* as the documents *Notes* in two cases. It's either if you have saved this data in local replica at reporting or if you have received them into local replica from server after the scheduled reporting was done. The list of the done report builds as well as the report data you can view in the report properties document on the tab *Data*.

5.5.1 Viewing data

To view data created at a reporting in separate window, do the next:

- Open a report properties document or select ones in the view **Reports**;

  In the view you can select more than one report if you want to view data of several reports at once.

- In the menu **Report Data...** at the top choose **Show in Window**.

  If have been done more than one build of the same report you should choose the date and time of required ones.

The data of each chosen report creating and/or each chosen report will be placed in own window. If you want to export viewed data to a file, in menu **Export to...** at the top choose a type of the export: **MS Excel**, **Tidestone F1** or **HTML**.

5.5.2 Exporting data

To export report data to a file, do the next:

- Open a report properties document or select it in the view **Reports**;

  In the view you can select more than one report if you want to export data of several reports at once.

- In the menu **Report Data...** at the top choose **Export to...** and then a type of the export: **MS Excel**, **Tidestone F1** or **HTML**.

  If have been done more than one data creation of the same report, further you should choose the date and time of required ones.

If you have chosen more than one report or/and data creation of a report for data exporting, the window will be displayed where you should define a method of placement of their data: **Into Separate Files** or **Into Separate Sheets of Single File**. If you have chosen the second method, in the next window you should confirm or change the path and name of a file to which will be exported all chosen data.

5.5.3 Deleting data

You may delete data of a report in the app *Reports Wizard* on your computer if they are not anymore required for viewing or exporting to a file. The report data deleting means that removing documents *Notes* representing report rows in the app will be done. It's required to be performed periodically in order to reduce the app size.

To delete all data of a report, do the next:

- Open a report properties document or select it in the view **Reports**;

  In the view you may select more than one report if you want to delete data of several reports at once.

- In the menu **Report Data...** at the top choose **Remove All Data**.

  Wait for ending of the deleting, its duration depends on count of report data rows.

You may see the window with suggestion to delete data of all reports when you quit the app *Reports Wizard* if the common count of data rows exceeds the specified limit. Such limit is set by the app admin. You should agree or refuse the reports data deleting.

The deleting of data on server which are created at scheduled reporting is performed automatically when the period of data storing on server will expired. Such period is set by the app admin. The deleting of report data on server doesn't mean the deleting them in local replica of the app if you have received the data from server earlier, and vice versa.