Redatam Webserver

New Miranda web application
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I. What is Redatam Webserver

The main objective of the Redatam Webserver module is to assist the National Statistical Institutes (NSOs) in their task to publish data - whether it is from censuses, surveys, vital statistics or other sources – in a safe way and without extra costs. The Redatam Webserver module allows for the online processing of Redatam databases stored on a server (through Intranet or Internet) without the users having direct access to them. It enables the user to perform tabulations that are carried out from the server through an application via predefined pages. This processing “simulates” the functions of the Redatam Process module.

Redatam Webserver applications work through files with an INL extension. These applications are organized in thematic nodes (ToC) that allow different types of outputs. For example, there are predetermined outputs that allow users to generate tabulations such as frequencies, crosstabs, means, medians, maximums, minimums, counts, area lists or specific indicators defined by the user. Redatam Webserver applications also include the possibility of online processing utilizing the Redatam programming language.

In Redatam Webserver the output tables can be displayed as values/frequencies in tables, as charts or maps. The user can specify how the results are displayed from those three formats. In addition, another output type available is the Redatam syntax used to generate the output table.

In addition, Redatam Webserver applications provide the possibility to incorporate metadata, such as documents with descriptions on the characteristics of the data source, the questionnaire and methodological manuals. Help files and links to organizational Web pages can also be included.

I.1 Advantages of Redatam Webserver

Redatam Webserver offers a set of advantages both for the user and for the organization responsible for its implementation.

From the users’ point of view, the main benefit is the ease of use of the application and the processing speed. As will be demonstrated later in this manual, the application is designed in a way that both persons with no experience in Redatam and more advanced users can take advantage of it. The module allows for the generation of predefined tabulations, maps and graphs but also to make use of the Redatam programming language for more specific tabulations.

The user also benefits from the data processing speed. The response time does not depend on the hardware that is used but on bandwidth and the server of the organization offering the database.

From the point of view of the NSOs, the benefits are numerous. To begin with, it is a free software, simple to implement and offers an easy way to control the access to the databases. Moreover, support and technical assistance is offered by the Redatam Development Centre team of CELADE and through REDATAM user’s community.
Redatam Webserver permits the control over the access to the databases and the processing options by the Web Site administrator. This characteristic contributes to the management of the identification of the users, their entry options and eventually the possibility of a nominal payment. These alternatives help to avoid the spread of illegal copies of the databases.

I.2 Redatam Webserver applications available in Redatam
The Redatam website (www.redatam.org) presents a portal with various Redatam Webserver applications. They are organized in major groups: 1) Online censuses, 2) Surveys 3) Aggregated data/indicator systems, 3) Vital statistics, 4) other surveys and 5) New Miranda Demo.

The link to “censuses” on the website, gives access to a list of countries organized by region that have made available the microdata of one or more Population and Housing
Censuses utilizing Redatam Webserver. These applications have been developed by the NSOs with the support of CELADE. The applications are available on the NSO websites and/or the ECLAC server (as a mirror site or at the request of the National Statistical Institute).

Finally, the website includes a Redatam Webserver demonstration application based on the New Miranda database in four languages. This application will be presented in the following section.
II. New Miranda demonstration application

The following image shows the main page of the Redatam Webserver demonstration application created with the New Miranda Redatam database.

II.1 Thematic structure

The application was constructed with the following thematic structure (the left side panel of the image):

1. Population and housing
2. Population structure
3. Elderly
4. Fertility
5. Education
6. Dictionary information
7. Programming in Redatam
8. Documentation

Each one of these themes (also called nodes) is divided into sub-themes and these in turn to a specific processing type.

For example, “Population and housing”, is divided into the following sub-themes:

- Basic characteristics (frequencies, means and medians)
- Basic characteristics (cross tabulations)
- Basic characteristics (arealists)

“Population structure” is divided into four sub-themes:

- Population by sex and age group
- Dependency ratio (user defined)
- Age distribution
- Dependency ratio and/or sex ratio

The following sub-themes are included in the Elderly topic:

- Person characteristics by age (65+).
- Household characteristics (personas 65+).

“Fertility” has two sub-themes:

- Children < 5 / Women ratio
- Average number of children

“Education” also has two sub-themes:

- School age population
- Tables for education variables

“Dictionary information” includes information on the variables included in the Redatam database (six subgroups). The “Programming in Redatam” has three subgroups. Finally, the “Documentation” topic gives access to the help files and Redatam webpage.

Each of the sub-themes involves specific processes. The user can get access to the processes, by simply clicking on a subtheme. Once this is done, the center panel changes appearance and presents (in most the cases) an execute panel (also called menu). However, the last three nodes offer other options, such as access to downloads, links etc.

II.2 Similarities and differences between the execute panels

The execute panel consists of a series of drop down menus and text boxes which the user must complete or select for specifying the parameters such as variable name, area-break level, geographic area, output format, etc. (see following image).

The panel also includes a “Help” button to access contextualized technical assistance and an “Execute” button to run the process itself. Clicking the “Execute” button, then allows for the display of the output based on the specified format; this can be a table, a graph, a map or a Redatam program (or a combination).

Some of the boxes are “standard” and are therefore repeated on all panels irrespective of the theme. However, in a few cases there are some boxes that are specific to particular sub-themes.
**Table Title:** To be typed in by the user (Optional).

**Areabreak Level:** This selection allows the user to specify the level at which the results will be expressed i.e. at the database level or for each of the selectable elements of the database. This parameter is optional, thus if none of the options are selected the application expresses the results at the database level (all database) which is the default.

**Geographic Area (selection):** To define the geographic area to which the cases included in the process belong. The parameter is optional. The user can select one of the predefined options or define the selection by self. Up to two user defined selections can be created selecting either 1st or 2nd user's selection from the box and making a click on “Edit”. A new window will open for the definition of the selection. To save the selection and return to the execute menu the user must click on OK.

**Filter:** This option allows the user to control the parameters that are processed i.e. the universe (entire database) or parts of the database (based on specified criteria). The parameter is optional. If the user doesn't make a selection, then entire database will be taken into account in the process (unless geographic selections exist). On the contrary, the application offers the following options: 1) select a predefined filter, 2) construct a filter in the box below, or 3) use the expression builder option that is activated by clicking the “Build filter” button.
To construct a filter, the user must select an entity by clicking on the desired entity from the entity list of available entities. Next, click “Variables” button and from new the box that opens, select the variable. A double-click on the variable name passes it to the “Filter” box at the upper part of the window where the expression will be written. The user must then choose the operator to be used, either using the buttons of the toolbar or typing directly in the box. A click on the “Labels” button opens the category labels list. The category value is selected either with a double click, or simply writing the value after the operator. If the expression uses more than one variable, AND or OR must be used to join the two or more conditions. Finally, the filter is activated by clicking “OK”.

The following image shows the construction of a filter for persons who are attending school.
The following sequence was followed:

1. Selection of the “PERSON” entity in “Entity” box,
2. Click on “Variables” button,
3. Selection of the variable “School Attendance” from the list of variables in the database
4. A double click on the variable name
5. Click on “=” button to specify the criteria for selection,
6. Click on “Labels” button,
7. Double click on “Attending”,
8. Click on OK.

Output format: This allows the users to choose the display format of the output from a list of available display options given in the output format list. Once the user clicks “Execute” the selected output will be displayed in a new window. The system offers two output format types that vary depending on the sub-theme.

1. “Table”, “Graph”, “Table and Graph” and “RedatamProgram”. This format has two variations that refer to the graphs. In some cases the graph must have up to two variables. In other case, the graph to be displayed as an age pyramid.

2. “Table”, “Graph”, “Map”, “RedatamProgram”, “Table and Graph”, “Table and Map”, “Map and Graph” and “Table, Graph and Map”.

Similar to the output format box, there are percentage type boxes that are present in sub-themes that allow to user to specify how the values/frequencies are displayed. Two options are available:

1. “Absolute numbers”, “row percentage”, “column percentage”, “percentage of total”. If the user doesn’t select any of the options, absolute numbers will be displayed.
2. “Total”, “total selected”, “percentage”, relative percentage”. This model is only available for sub-themes that involve the selection of variables and categories. The option “total” is used when the user wishes to obtain the results for all the categories of the variable.

When “total selected” option is activated the output only displays the selected category. With the option “percentage” the output shows the percentage of the selected category of the total. “Relative percentage” is a ratio of the selected category and the rest of the cases (for example, if the variable is SEX and the selected category Male, the relative percentage would be equal to sex ratio.)

Also more specific cells exist. The options available in the New Miranda example can be classified as follows:

Simple selection cell: For the selection of one or more variables (or indicators). The user must activate the list and click the name of a variable (to select more than one variable press CTRL button and select the other variables). Two variants exist:

1. Selection of variables of one entity.

2. Selection of variables from two different entities (for example, PERSON and HOUSIN). The list is displayed in one box.

Multiple selection cells: For the selection of one main variable and two additional variables to be included in the rows and columns of the table, each in separate cells. The selection is done by activating the variable list and clicking on the variables of the three cells. This option corresponds to crosstabs or to averages or medians with control variables.

Numerator and denominator cells: Two cells for the numerator and denominator to be used in the calculation of an indicator. The user must activate one of the options available in the numerator cell and another one in the denominator cell. Such a selection would apply for the construction of indicators such as dependency ratio.

Variable and category selection cells: One cell for the selection of a variable and a second cell for the selection of the categories of the selected variable. The user may select more than one category; however, only one variable may be selected.

Finally, there are sub-themes that do not include specific cells in their execute panels. This is the case, for example, when the process involves an indicator that has already been calculated, such as average number of children born.

II.2.a Frequencies: Basic Characteristics of Population and Housing topic

The execute panel of these sub-themes (Housing variables and Person variables) allows the user to generate simple frequencies of housing variables, person variables or both. For each sub-theme the execute panel is exactly the same, the only difference would be the in the variables available for selection.
II.2.b Averages and medians: Basic Characteristics of Population and Housing topic

These sub-themes include an execute panel for the entry of parameters for the calculation of averages and medians of population and housing variables. The standard boxes available include the definition of the table title, output level, geographic selection, filter and output format.

The additional features of this execute panel are the multiple selection cells; one for the main variable and two for additional variables to be included in the rows and columns of the output table.
The user must select one of the quantitative variables included in the first box, and if desired, one variable for the rows and another one for the columns. These two (by row or by column) are optional and can be left blank.

II.2.c Crosstabs: Basic Characteristics of Population and Housing topic

This sub-theme allows the creation of contingency tables for population and housing variables, either for each entity separately or combining variables from both entities.

With reference to the standard cells, this execute panel is identical to the sub-themes that include frequencies, averages or medians. As the following image shows, the difference is given by the boxes where the row and column variables are selected.
The selection of a variable from each of the two drop down boxes is obligatory. In the “Combination” sub-node, the variable lists provided in the two drop boxes are alike and include all the variables from both entities.

The execute panel also provides the option to select between row, column or total percentages. If none of the options are selected, the output displays absolute numbers.

In this execute panel the options “graph” and “table and graph” only accept up to two variables.

II.2.d Arealists: Basic Characteristics of Population and Housing topic

The arealist sub-theme is for producing a frequency distribution of all the categories of the variable for each geographic area.

As it relates to the standard cells, this execute panel is identical to the subthemes mentioned above. The difference lies in the box where the variables are selected. Also a new output format option is available, namely maps (also in combination with tables and graphs).
II.2.e Population by age and sex

The population by sex and age sub-node offers three tabulation options: by five year age groups, by single years or by major age groups.

Title, filter, areabreak level and geographic selection boxes are standard. The only special characteristic is found in the output format options. Graphs are replaced by age pyramids.

II.2.f Dependency ratio (user defined)

In the dependency ratio execute menu, the user defines the numerator and the denominator for the indicator to be calculated. As the following image shows, first the grouping format for the variable age must be selected. Next, the user must define the age ranges that make up the numerator and the denominator.

In addition to the standard cells (title, filter, output level and geographic area) a cell for the selection of the output type is offered. The user can select between “Indicator” and “Indicator and cases”.

The second option displays in two separate columns the counts for the denominator and denominator.
II.2.g Age distribution

In the variable selection box the user can choose between larger age groups or five year age groups. The user can select the age groups of interest. Moreover, the user can select which values are to be displayed in the output table (absolute numbers or percentages).

The rest of the cells are standard. The output formats available include maps.

II.2.h Dependency ratios and/or Sex ratio

This sub-theme is for obtaining two indicators, dependency ratio ratios and sex ratio. The indicator or indicators of interest must be selected from the cell as shown below.

The rest of the cells are standard. The output formats combine tables, graphs and maps.

II.2.i Person characteristics by age (65+)

This sub-node offers frequencies to be calculated for persons aged 65 years and above. Once the variable of interest is selected the user must select the variable categories.
In addition to the standard options, a box for the selection of cell percentages is available.

II.2.j  Household characteristics by age (65+)

This sub-theme offers a set of outputs including only persons aged 65 years or above according to their housing characteristics. It works the same way as the sub-node described above with the only exception being that the variables belong to HOUSIN entity (i.e. variables at the household level).

II.2.k  Children / women ratio

This sub-node is for obtaining an indicator for the proportion of children aged 0-5 to women aged 15-49, by 100. Since the indicator is calculated directly by the system, the only cells available on the execute menu are the standard ones.

II.2.l  Average number of children
This sub-node is for obtaining the average number of children per women. The user must indicate variables to be included in the rows and columns of the output. If these cells are left blank, the output displays the average number of children alive/born alive.

```
Average of: Number of Children Alive
By (Row):  Number of Children Born Alive
By (Column): Number of Children Alive
Area break Level: (None)
```

### II.2.m Population in school age

This sub-node is for obtaining outputs of the population according to age groups that normally correspond to different levels of education. The user must select one or more of the categories listed.

```
Select one or more conditions:
- Schooling Ages
  - 0-5
  - 6-12
  - 13-18
  - 19-25
  - 26+
```

### II.2.n Tables for education variables

This sub-node gives the option to make crosstabs of up to three variables with reference to education and literacy level. In the execute panel, there are three cells for the identification of the variables of interest.

### II.3 Special sub-nodes

In the New Miranda sample application the sub-nodes belonging to the nodes “Dictionary information”, “Programming in Redatam” and “Documentation” don't include an execute menu as described above. The following sections describe the other options offered by the application.

#### II.3.a Dictionary information

As the name indicates the sub-nodes of this node provide information on the dictionary. Once the user clicks any of the four sub-nodes, a list with all the variables including entity names, labels, type, alias and group is displayed. The sub-nodes are:
- All variables
- Geographic variables
- Household variables
- Person variables

The image below displays a list of the sub-node “Geographic variables”.

To get access to a list with the variable categories, the user must select the Household or Person categories sub-node and select a variable or variables from the available list and click the “Execute” button.

Select one or more Variables (press Control key )

In addition to the category list, the output displays information on the entity to which the variable belongs, label, type, range, alias and group.
II.3.b Programming in Redatam

This sub-node allows the use of Redatam programming language to execute programs and to download the dictionary and the software.

*Redatam statistical processor*

This sub-node gives access to the Redatam+SP programming menu. As the image below shows, the center panel of the application is divided into three cells.

The program syntax is written in the upper left cell. The cell on the right hand side includes information on the database dictionary. If the syntax contains errors, those errors are displayed in the cell below the program syntax (lower left corner) upon clicking “Execute” button. If the program contains no errors the results will be displayed.
Additional programming assistance may be obtained by downloading the data dictionary and the Redatam+SP software (RedatamProcess module).

**Download dictionary**

A click on the subtheme allows for the download ONLY of the New Miranda database dictionary. The purpose of this is to use the Redatam Process module to debug the program and then copy and paste in the web window to process. The database is never downloaded.

![Opening Down_Dictionary DIC](image)

II.3.c Help

This sub-theme includes a link to a web help page that is displayed on the center panel of the application.

II.3.d Redatam homepage

With a click on this sub-node the user is directed to the Redatam homepage www.redatam.org.

II.4 Output panels

The New Miranda WebServer application includes three basic output types: tables, graphs, maps and Redatam programs. These are displayed by clicking the “Execute” button. In some cases, the three first display formats may be combined. Moreover, in some cases the graph type available is an age pyramid. Table outputs can be saved in Excel (.xls) of PDF (.pdf) formats.
II.4.a Tables

The following image shows an output table of the variable “Type of Activity” (person variables sub-node).

![Table Image]

II.4.b Graphs

The following graph displays the distribution of the New Miranda database by marital status for people aged 15 years or older (person variables sub-node).
II.4.c Maps

The map below presents another output type available in the New Miranda Redatam Webserver application. It was obtained from the dependency ratio and sex ratio sub-node and is expressed at district level.

II.4.d Redatam programs

Redatam program syntax is the fourth output type option. The following image shows the program obtained as a result of the crosstab of “5-year age groups” by “education type”.

```
RUNDEF Job
  SELECTION ALL

TABLE title
  AS CROSSTABS
  OF PERSON.EDQUIT
  BY PERSON.EDTYPE
  OMITTITLE
  DECIMALS 2
  FOOTNOTE "Processed with Redatam+SP ECLAC/CELADE 2003-2010"
```