SAS Client user guide

Design motto of the system is "easy to use", therefore most of the things you have to do are intuitive and don't need big explanations. Also we are asking you to explore. No harm to the system you can do.

Please, spend 10 minutes and read the manual below which is more interactive and gives some good ideas how to turn the system to serve your needs and help your work.

1. Start the program by double click on the CASClient.exe. (We assume that all connectivity settings are done)
   - Type your Username and Password to login to the Server or press "Work Offline" in case you have not possibility to connect to the server.
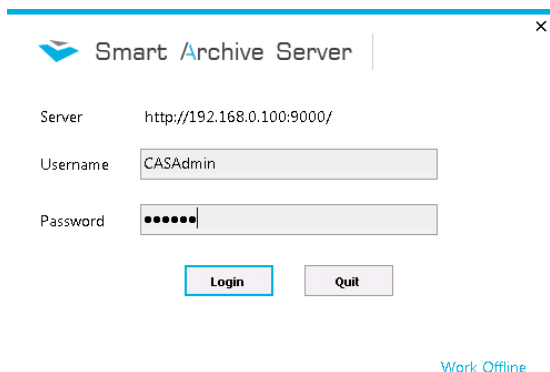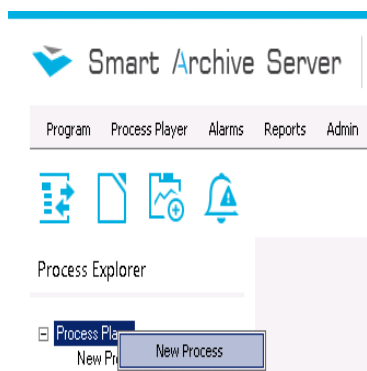

   - In Offline mode you will be able to open and work with previously saved trends and reports. *(This feature could be used if you want to send needed information to suppliers or specialist. Just "burn" the CD/DVD by adding the complete folder of CASClient and saved files. Program will work fine on any PC with Windows 7 and latest .net update installed.)*
   - After you are logged in all of "your" exiting trends will be available to be used and you can find them in the navigation three.
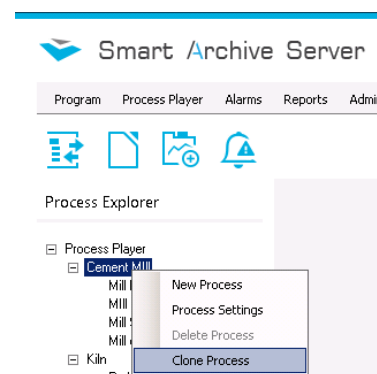   - You can change your colour scheme by pressing "Switch Theme" icon.
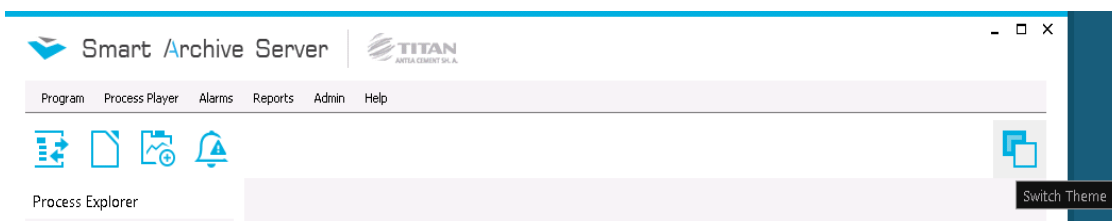
   - Change your password from the menu – Program\Change Password.
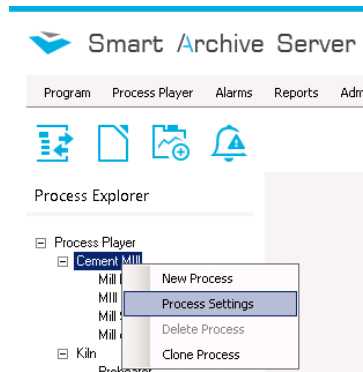
2. Create new trend set by pressing right mouse click on "Process Player" and select "New Process".
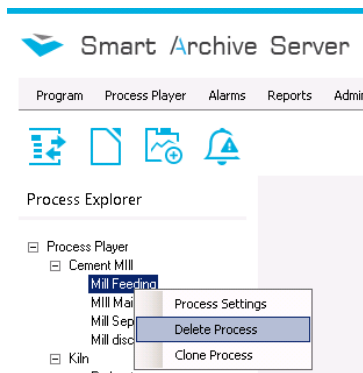

   - If you want to use already exiting trend set as template select "Clone process".

4 Ravnishta Str, Plovdiv 4001, Bulgaria
Tel.:+359.32.640.750 fax: +359.32.623.455
www.smartarchiveserver.com
contact@smartarchiveserver.com

- To edit - adding/delete modify trend set, select "Process settings".

- To delete trend system select "Delete process".

Note: If "parent" trend set contains sub trends sets, you can't delete it. First you have to delete all sub trend sets prior delete parent. The reason is to avoid accidentally/unwanted deletion.

Most of the needed settings are preset. Finishing requires entering some info and final adjustments. On the new screen, in tab "General" you are asked to enter the name of the trend system.
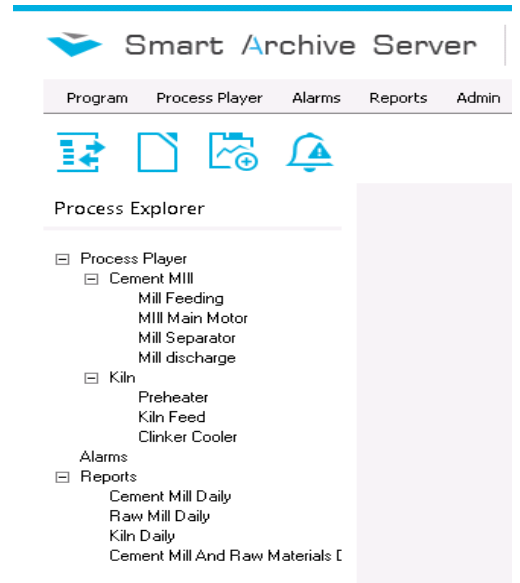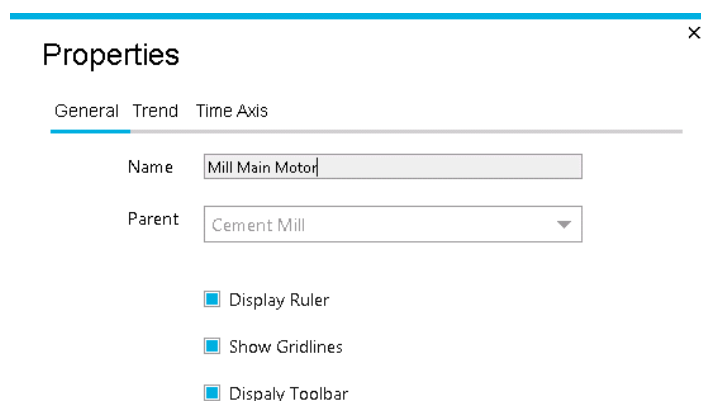
Option parent is used for organizational purposes how different trends will be organized in process player tree. For example if you want to organize your trends for cement mill, then for different area, sub area, device and etc. (see the example in right).

Select "Trend" in order to add/remove or edit trends. For each trend you can do specific adjustments. Such as type of the trend:
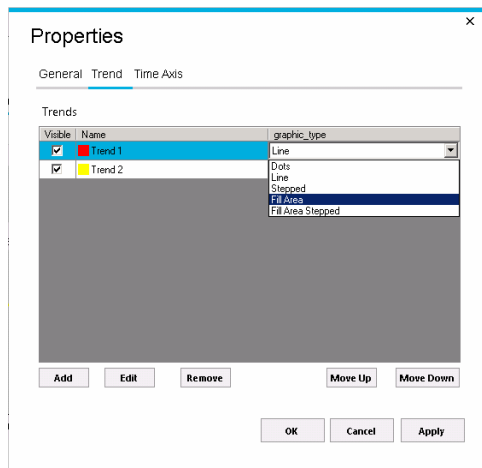
- Dot – Draw only dot of the value corresponds to time
- Line – Most used way when the plot is continuously curve. Recommended for analogue values visualization
- Stepped – most suitable for binary values
- Fill area is kind of line option, but the area bellow the line is filled. Mainly used for statistical representation
- Fill area stepped is like normal stepped, but the area bellow the line is filled, again useful for statistic representation

If you select Add/Edit a new screen will pop up on order to do minimum needed entries:

- Name – This is the name of the trend, but you have to specify more meaningful to you value (for example Main motor current)
- Color of the trend
- Display type (Dot, Line, Stepped...)
- Line Weight
- Selection of TAG you want to be plot
- Common YAxis – typically each trend has own Y axis, but this option is useful when you want to plot values from the same dimension and range (for example pre heater under pressure). This will save plot space and make more easier perception of the chart.
- Y-Axis Name – typically is the dimension of the value (for example [mbar])
- Scaling – Linearly or Logarithmic and you can choose which scale markers to be visible
- Range selection is advisable to be left automatic. This are begin and end value of Y-Axis.
- You can specify also limit values where trend to be drawn with different color. This is useful only when very few trends are selected to be plot. Other advantage of this feature is really easy you can determine when you process went out of limit i.e. bad operation. This is very useful for decision about the needed change of control of the process
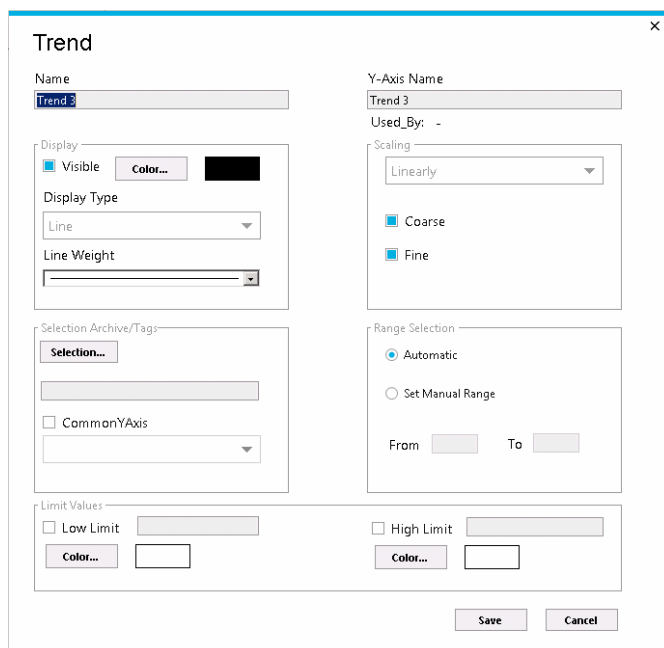
Last settings are for Time (X) – Axis.

- Here you can specify the time range you want to see your trend. This available and can be changed easy at any time later on the trend system.
- Select the option display period and respectively the factor when you request big time range. Plotted trend will be just part visualized on the screen according to the factor and you can use navigation pane for processing the trend. For example if you want to see whole month performance of some parameter, and you want to see more details, it is advised to select factor of 12 hour. But if you just want "to have an eye" how the process was look like, then don't select this option, and whole period will be visualized on just one screen.


After you press "ok" or "apply", your new trend system will be displayed and all data for the desired period will be retrieved from the server. Note: if you have many trends and the period is big, this could require more time all of the data to be taken from the server.
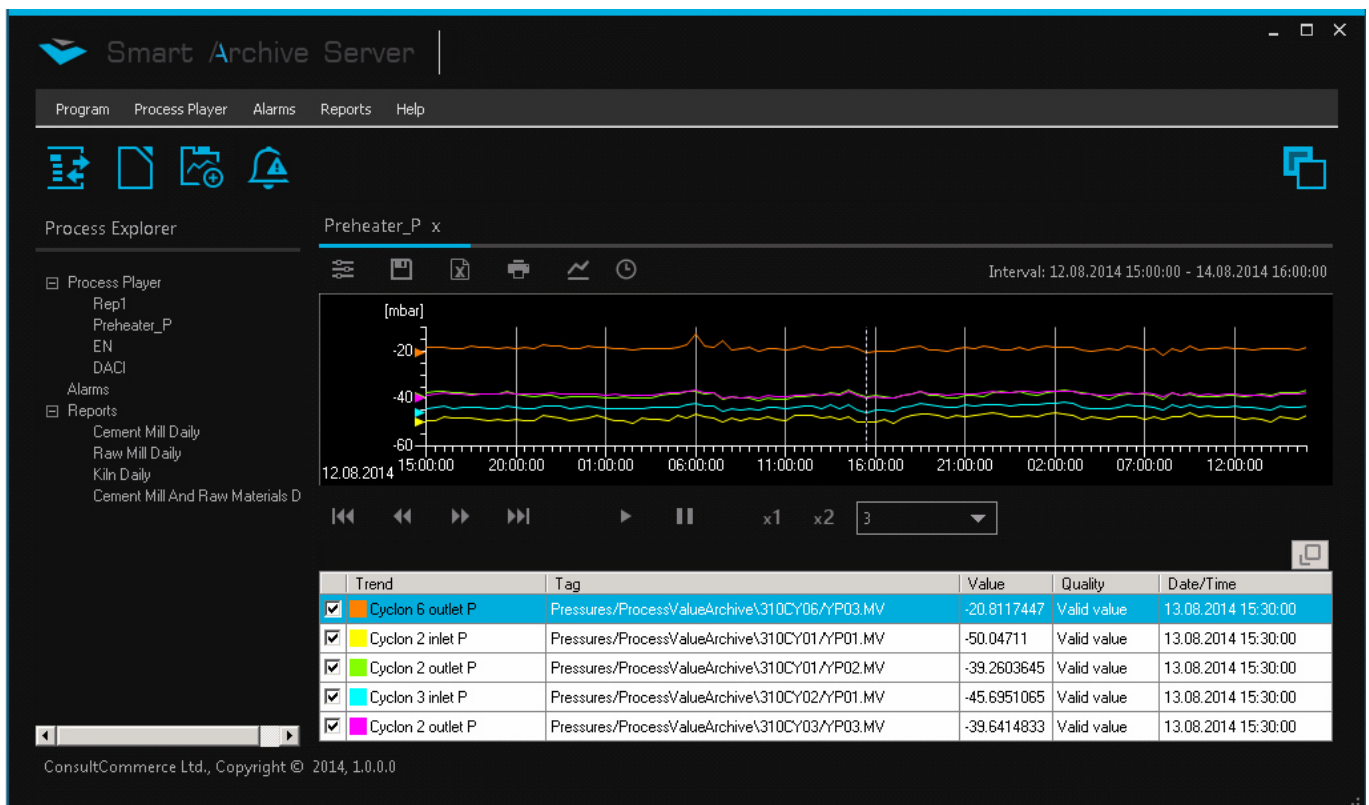
Important to know is that you can use in parallel with all tools. One doesn't require closing of the other, so you can open 3-4 trends, 2 reports, alarms.

3. Process player has two areas:

- Plot area, where are the trend. On the top is tool area.
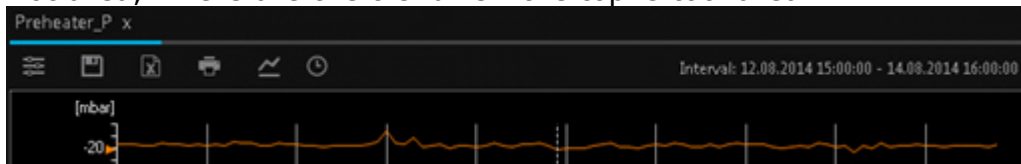
From here you can export the numeric values of the trend to excel files for further processing. Also you can print, pop-up settings window, select new time interval, adjust trends and etc. One of good future is that current save trend, can be saved on file and latter open in offline mode. This will give you possibility to use all feature of the system even if you are not connected to the server. *(Some advice for other usage of saved values: Many times you are visited by process experts, supervisors and etc. And every time you are asked to find the way to sent trends either in graphical and table format, so you can do the custom chart add the trends, select the requested period, then save the file, burn the CD/DVD including whole folder of CAS client and send it)*

- Activities on the value and time axis. By pointing anywhere on the axis and sliding mouse wheel up/down trend is rescaled, this is action as zoom. If you press right mouse button and move mouse up and down all trends assigned to this axis will be shifted up/dn. This is useful for fast trend rearrangement in case you have many trends which are overlapping; or if you are trying to find dependencies then you can overlap trends.
- If you point your mouse on some trend, system will show you the value below mouse pointer. If there are many trends, system will show all values close to the mouse pointer.
- Bellow the trend is navigation pane. From here you can move directly to begin or end of the period, or to next step. Imagine you have selected 10day and you have selected the option "display period" for one screen 12h. So pressing next button will plot next 12h values. If you want to monitor system has play button and speed of playing selection, so you can just sit bag and observe. Trend will be automatically played.
- Ruler - hold right mouse button and start dragging fore/back ward in the table form you will see the values and the time where ruler crosses the trend

- At the bottom is table format representation of the values according ruler position. This table can be pop-out and will release bigger space for trends. Also is useful if you have second monitor to put there the table. This is very useful in case you have many trends (more than 15 for example). With mouse right double click on the tag, a settings windows will pop-up.

4. Loop in alarms.

This tool can help you for fast trouble shooting when you are looking for reason for stoppage of failure and etc. You can apply you filer by selecting which classes of message you are looking, for example alarm that lead to stoppage of drive, also you can select the area, for example if you are looking for problem in cement mill area. So you can specify your custom period, or press button 24h, which means last 24 hours or 7d, which means last 7 days. After that press button "read" and system will retrieve all messages that correspond to your filer. If there are no "hits", will be Rows: 0. after that you can apply more specific filer, for example specific TAG by enter in Source or Event, or Info text fields.

5. Report System.

- **Client Specific Reports:**
    - o These features are valid for all report kinds: they can be print, exported to excel or pdf file. You just need to select the day from the calendar, and report fill be filled with the values for selected day.
    - o Operators Journals and client specific – these are complex, predefined reports, customized according to the client request. Their modification requires a lot of knowledge.
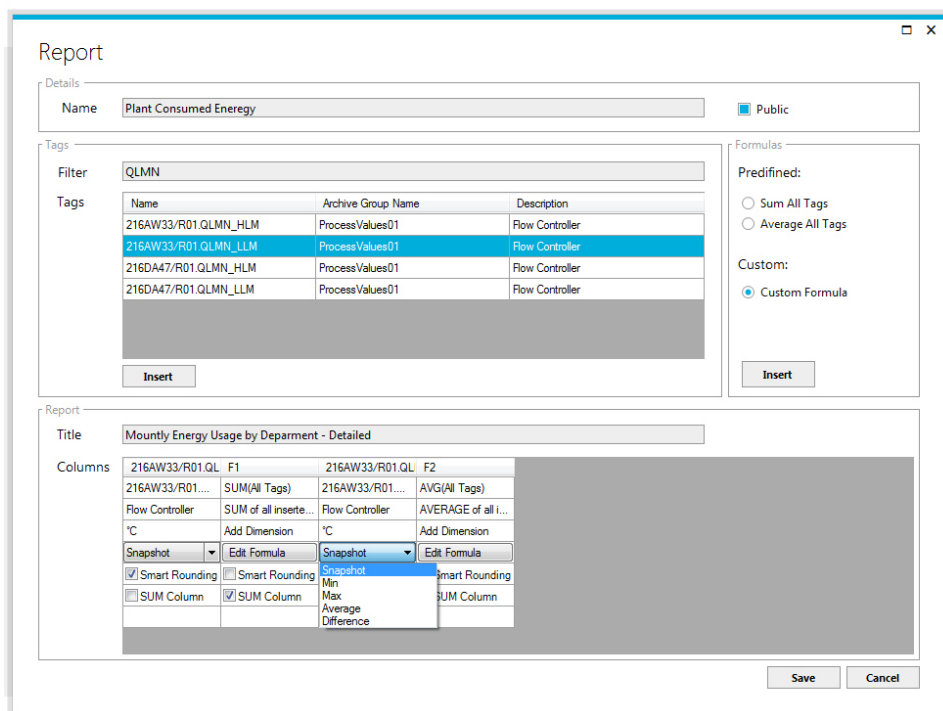   - o
- **Simple report generator:**
    - o Create new report.
      Press right mouse click on the "Reports" node in the navigation tree. Configuration windows will pop-up. In report details, give unique name of the report. This name will be visualized in the navigation tree under the node "Reports". This name has to be meaningful as good practice is to give a clue what is inside the
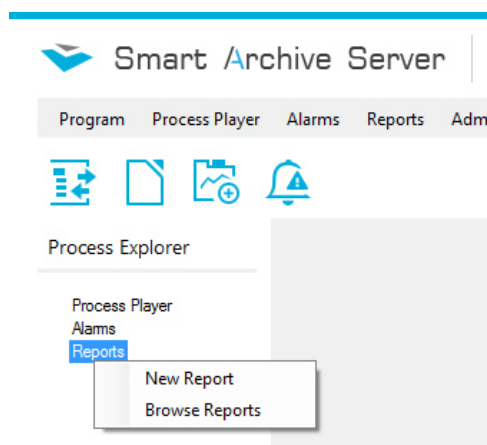
report. If you want report to be used from other users select the option "Public".

Important note: Only report creator (owner) can modify/delete the report. If report is in use only CAS administrator can delete it.

o **Add a new TAG to report**: In TAG section filter the tagname or tag description in order facilitate the search in the vast amount of TAGs. Then select desired TAG and mouse double click will insert next to last TAG in the report or use Drag'n'Drop if you want the tag to be inserted in specific place between tags, by pointing the position. Add as many as you want tags.

You can exchange the position of columns by pres down left mouse button on the column you want to move, point the new position and release mouse button.

Add a new Mathematical formula to report: In formula section Select predefined formula or custom formula. Predefined are:

SUM all Tags – Result will be the sum of all values in the row no matter the position. i.e. if in the row you have 5 member of the report as one of this is sum of all tags, in the cell will be the result sum of the other 4

Average all Tag – Result will be the average of all values in the row no matter the position. i.e. if in the row you have 5 member of the report as one of this is average of all tags, in the cell will be the result average of the other 4 (Similar to SUM of all tags)

Insert Custom Formula – By selecting this option and pressing button insert, a calculator like window will pop-up.

Important note: Only already inserted tags and formulas can be used for creating new custom report.

Mathematical execution order is respected. After you define your formula press "Save" button in order to

complete insert process or press „Cancel" if you want to skip the process.

Give report tile and finalize the settings for each tag and formula:

216AW33/R01.QLMN_LLM	F2
216AW33/R01.QLMN_LLM	AVG(All Tags)
Flow Controller	AVERAGE of all i...
°C	Add Dimension
Snapshot ▼	Edit Formula
Snapshot Min Max Average Difference	☑ Smart Rounding ☑ SUM Column

- Top is the name of TAG/ Formula they cannot be edited.
- Second row is editable and here you can format the name of the tag. If you delete it this cell will be empty.
- Third row is the description[*]. Edit them as you want to be visible in the report.
- Forth is the dimension (physical) of the TAG value[*].

[*]Depends on your data channel source this values can be automatically available.

- Fifth is the mathematical pre-processing of the result value. During execution of our report we have one key parameter and this is the step of the report, other factor is the resolution if archiving of the TAG. For example if we select 1 minute step and our archiving period is 10s, then we will have 6 values. Our report has to fill the report sell for this minute with only one value, so by thus option we are telling how this value to be calculated. So we have five options:

  - *Snapshoot* – It will show exactly the value of the specific time without any mathematical pre-processing

  - *Min* – Result value in the cell will be the minimum. In referring in previous explanation we will have 6 values for example [4,67,23,56,22,57] result will be: 4

  - *Max* – Result is the maximum value for the step. In referring in previous explanation we will have 6 values for example [4,67,23,56,22,57] result will be: 67

  - *Average* – Result is the average value of the step. In referring in previous explanation we will have 6 values for example [4,67,23,56,22,57] result will be: 38.1667

  - *Difference* – Result will be the difference between end and begging of the step. This option is specially developed when TAG is counter. In that way is easy to calculate the fed tons for this step or used energy and etc.

- Sixth is the option "smart rounding" – This option is only affecting visual perception of the figures as mathematical operations are with complete resolution of the value. It format the value in that way xxxx and more; xxx.z; xx.zz; x.zzz;
- Seventh options is calculating sum of all values of the column

Save your report and you are ready to use it.

- Open exiting report from your navigation three or browse public reports created by other users by pressing right mouse click. If you want to edit or customize, or create
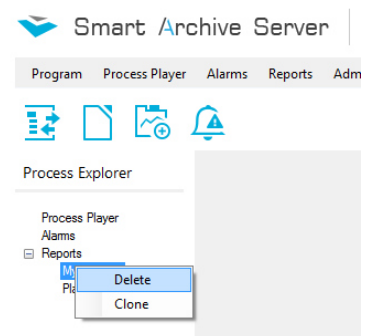

new report using exiting as template press "Clone" button. Only report creator (owner) can modify its report. Others just can use them. Here you can have some basic information as how many users are using the report, last usage, which is the report creator and etc. One report is used/cloned it is appearing to your navigation three. If you want

to remove it (in case you are not the owner) or delete by selecting the report in navigation three, press right mouse button and select delete. If you want to use some of the reports in your navigation three as template for new report, just repeat above and select the option "Clone"

- **Using the report**

Please specify the period you want the report data to be generated. You can do this by selecting "From To" or pressing predefined buttons for 24h, 7d which means last from the current moment 24 hours or 7day. Then you need to specify the step and period which can be second, minute, hour day. The meaning of this selection is that you define each row what time period will represent which affect the number of rows and fill feed the mathematical pre-processing. Then press button Generate in order your report to be created. _Important notes:_ If you select long period this would lead to requesting huge

amount of data from the server, depend on the number of tags and mathematical pre-processing and could take really long time report to be generated.

If the selected step and period are hours and days then "From – To" period selection is affected by the round astronomical hour and new day.

After generation of your report you can export to Excel file for further editing and printing or you can save to file, so report with the values will be available for off-line usage.