D2_ArchArr

Accessing historical values - D2_ArchArr function

The function **D2_ArchArr** provides a more effective access to historical values of D2000 system.

Declaration	**D2_ArchArr**	
	(archObjName,bt, et, step, attribute, bDirectionByRow, refresh)	

Parameters

arch ObjN ame	**TEXT** type	• Reference to one value of historical value. • Reference to simple value of object (not structured variable). • In case of structured variable it is one item (SV.Struct[2]^Item), otherwise name of object (e.g. I/O tag). In this case the system will automatically look for a "suitable" objet of Historical value type. If the column "Item" is of the Object type it is possible to specify a string ",ALL" right after the name of column (e.g. SV.Struct[4]^Item,ALL). This causes the historical values to be obtained for the connected object, not for the item of a structured variable.
bt	**ABS . TIM E** ty pe	Begin time of the archive block.
et	**ABS . TIM E** ty pe	End time of the archive block.
step	**INT** type	Time step [s] within the archive block.
attrib ute	**TEXT** type	Required attribute of historical value.
bDire ction ByR ow	**BO OL** type	Time order of cells in matrix.
refre sh		Optional parameter.

Description

Return value of the function is of *Value array* type. The feature designates it to use in so-called *Matrix*.
Some matrix features:

1. Matrix is a continuous set of one or several cells (rectangular shape).
2. Expression defining a value of cells in the matrix is the same for all the cells.
3. A change of the expression in a cell must be confirmed by pressing the keys CTRL+SHIFT+ENTER (The consequence of item 2 is the automatic update of all other expressions for all cells in the matrix).
4. To create a matrix:
   a. Select the range (selection of cells).
   b. Press the F2 key and type required expression in a cell (e.g. =1).
   c. To finish editing press the keys CTRL+SHIFT+ENTER.

   The procedure above has created a matrix containing selected cells. Expression is the same in all the cells.
5. Expression for a cell included in a matrix is enclosed between combined brackets in the

   Formula bar: ____.
6. Only a whole matrix can be deleted. You must select all the cells of the matrix.
7. For all cells of a matrix, the expression (the same for all the cells) is evaluated just once. If the expression gets a value of *Array* type, the values of cells in the matrix will correspond to the values of the array.

The function returns an array of required attributes of the archive values (the parameter *attribute* – see the function *D2_GetValue*) of defined historical value. The parameters *bt* and *et* defines a time order of cells of the matrix. It is important only for matrix containing at once several rows and several columns. If the value of the parameter is TRUE, the values (ascending order by time) are inserted into cells row by row. Otherwise the values are inserted into cells column by column.

The parameter *refresh* - see the function D2_GetValue.
Value time from the archive is defined by is defined by the relative position of the cell containing the function call and the matrix in which the cell is placed.

Example

The parameters for the archive block are:
BT = 10:00:00 1.1.2000
ET = 12:00:00 1.1.2000
STEP = 30*60 = 1800 (1/2 hour)

the times of individual values in cells, according the matrix range and the parameter *bDirectionByRow*, will be as follows:

1. The matrix A1:A6, *bDirectionByRow*=FALSE or TRUE

	A
1	1.1.2000 10:00:00
2	1.1.2000 10:30:00
3	1.1.2000 11:00:00
4	1.1.2000 11:30:00
5	1.1.2000 12:00:00
6	no data

2. The matrix A1:B3, *bDirectionByRow*=FALSE

	A	B
1	1.1.2000 10:00:00	1.1.2000 11:30:00
2	1.1.2000 10:30:00	1.1.2000 12:00:00
3	1.1.2000 11:00:00	no data

3. The matrix A1:B3, *bDirectionByRow*=TRUE

	A	B
1	1.1.2000 10:00:00	1.1.2000 10:30:00
2	1.1.2000 11:00:00	1.1.2000 11:30:00
3	1.1.2000 12:00:00	no data

The return value of the function for all the values out of required interval is an error message: #*Value*, or the value of the cell named **SUPP_NO_ARCH_DATA** if exists (see the topic Predefined cells).