

# Accessing Historical Values

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Access to historical values is allowed by the functions [D2\\_ArchValue](#), [D2\\_ArchArr](#) and [D2\\_CalcStatFunc](#). The difference in the functions is in effectiveness of the values transmission between the interface [D2000 Workbook](#) and the **MS Excel**.

Getting each value from the archive, the MS Excel calls the interface [D2000 Workbook](#) by means of the function **D2\_ArchValue**. This method could be ineffective when the archive block contains a large quantity of values.

The function **D2\_ArchArr** is directly connected with so-called *matrix*. MS Excel defines the term *Matrix* (*array* in MS Excel terminology) as a continuous set of cells containing the same expression inserted in (for detailed description see the MS Excel help). From the point of view of interface [D2000 Workbook](#), a matrix is suitable just for the method of computing the values of individual cells. If the expression in cell contains a function, that gets a value of the *Value array* type, the function will be called for computation just once. The feature considerably reduces the number of calls of the interface [D2000 Workbook](#).

For the purpose of optimization, the **D2000\_WorkBook** interface stores values from archive reading in the cache. If some values from archive has been already read, a new request for reading data is identical with the previous request, the data will be read from the cache instead of the archive. This is necessary because MS Excel can enforce calculation of cells at any moment and therefore the execution of requests for reading directly from the archive may takes too long. So if a request for reading data from the cache is not coming in 2 minutes, **D2000\_WorkBook** automatically deletes the block of data from the cache and next request for the block is to be routed to the archive.

An advantage of such storing and reading is possible differences between the data in the cache and the data in the archive.