CALCSTATFUNC

CALCSTATFUNC action

Function

Evaluation of a statistical archive function on demand.

Declaration

```
 CALCSTATFUNC archIdent, timeFromIdent_TmA, timeToIdent_TmA,
statFuncIdent_Int, validPercIdent_Int, paramIdent, retValueIdent,
statusIdent_Int [,archivInstance_Int]
```

Parameters

archIdent	in	Reference to one value of historical value or reference to an object, values of which have been archived. **Warning:** If the parameter is the reference to an object archived several times, there is not specified which one of the historical objects is to be used.
timeFromItemIdent_TmA	in	Identifier of *AbsTime* type - interval beginning.
timeToItemIdent_TmA	in	Identifier of *AbsTime* type - interval end.
statFunctIdent	in	Identifier of *Int* type - statistical function type.
validPercIdent	in	Identifier of *Int* type - validation criteria.
paramIdent	in	Identifier of *Int* or *Real* types - parameter for some types of functions.
retValueIdent	out	Identifier for calculation result.
statusIdent	out	Calculation (action) success.
archivInstance_Int	in	Optional identifier of *Int* type - identification of archive instance. If the parameter is not defined, the value 0 will replace it.

Description

The action executes the calculation of the statistical function given by the *statFuncIdent_Int* parameter on the values represented by the *archIdent* historical value within the time interval specified by the *timeFromIdent_TmA* and *timeToIdent_TmA* parameters. After successful execution of the action, the *retValueIdent* parameter contains a result value of the calculation. The *statusIdent_Int* return code gets one of the following values:

- _ERR_TRANS_ABORT
- _ERR_TRANS_ERROR
- _ERR_TRANS_IGNORED
- _ERR_NO_ERROR

The set of implemented functions is equal with the functions, which may be configured for statistical archive (except the *FILTER* and *TIMESLICE* functions). For the individual functions, there are predefined local constants in ESL.

The *validPerctIdent_Int* parameter represents the Validation criteria used during the evaluation of the statistical function. It accepts values within 0 .. 100 (the error ERR_RANGE_ERROR occurs if the condition is not met).

For some statistical function, entering the *paramIdent* parameter according to the table is required:

Statistical function	Parameter description

<table>
<tr><td>_STAT_F_INTEGRAL</td><td>Integral time units. For individual types, there are also established predefined local variables according to the table:<table><tr><th>Constant</th><th>Description</th></tr><tr><td>_INTEGRAL_HOURUNIT</td><td>Hour integral</td></tr><tr><td>_INTEGRAL_MINUNIT</td><td>Minute integral</td></tr><tr><td>_INTEGRAL_SECUNIT</td><td>Second integral</td></tr></table></td></tr>
<tr><td>_STAT_F_GE_TIME
_STAT_F_GT_TIME
_STAT_F_LE_TIME
_STAT_F_LT_TIME
_STAT_F_ADDITION_PARAM
_STAT_F_INCREMENT_PARAM
_STAT_F_DELTA_PARAM</td><td>Compare value</td></tr>
</table>

For the other statistical archive functions, the *paramIdent* parameter is not being evaluated.

Value of the *archivInstance_Int* parameter defines the instance of the archive which executes the request. If the parameter is not defined (or the value is 0), the active archive instance will execute the request.

The timestamp of the result is identical to the specified end of time interval *timeToItemIdent_TmA*.

Note: When calculating **CALCSTATFUNC** action, a time limit that is active in the computations of statistical archives and does not allow for calculation for future times, is no applied. With **CALCSTATFUNC**, it is, therefore, possible, for example, to calculate statistics over a script-filled archive that has data in the future.

Example

```
TIME _bt
TIME _et
REAL _retValue
INT _retCode


_bt := %StrToTime("8:01:00 16-10-2003")
_et := %StrToTime("8:02:00 16-10-2003")

CALCSTATFUNC H.ArchObj, _bt, _et,  _STAT_F_SUM, 100, 0, _retValue,
_retCode

IF _retCode = _ERR_NO_ERROR THEN
; calculation done
ELSE
  ; an error occurred
ENDIF
```

Note 1

Using the **CALCSTATFUNC** action does not allow evaluaton of the *FILTER* and *ECOAVG* statistical functions.

Note 2

If it is necessary to calculate statistics over a periodic archive (e.g. *H.Period*), it should be noted that the periodic archive has values only in multiples of the period. For example, if it were necessary to calculate the integral from the periodic archive and the beginning of the interval would not be multiples of the period, 0 would be integrated from the beginning of the interval to the first multiple of the period.

This feature can be circumvented by creating a change-based computed archive object (e.g. *H.PeriodOnRead*) that is computed on-read and that copies *H.Period*. Integral computed from *H.PeriodOnRead* archive will behave as expected.

Related pages:

Script actions