Automatic subsequent evaluation of measuring results

Basics of the automatic subsequent evaluation

During the CNC run, the workpiece is probed, CALYPSO collects the data and converts it. Afterwards the data is evaluated and transferred and reports are output according to your settings in the measurement plan. These processes require a certain amount of time during which the CMM does not work.

In order to avoid a standstill of the CMM during the evaluations, you can use a second computer for time-critical tasks. This has the effect that the CMM is immediately free for further tasks after the end of the measurement.

Advantage: The CMM utilization is increased significantly and time is saved. The more complex the evaluations and reports, the higher the time saving. For curves, the time saving depends on the usage of the curve results in the measurement plan.

Requirements

For this function, you will need, in addition to the CMM computer, another computer with CALYPSO on which the same measurement plans as on the CMM computer are available, i.e. an evaluation computer. If necessary, the evaluation computer can also carry out evaluations for other CMM computers.

The computers must be interconnected, i.e. each CMM computer must be able to access the drives of the evaluation computer and vice versa.

Process

During the automatic subsequent evaluation, the process is as follows:
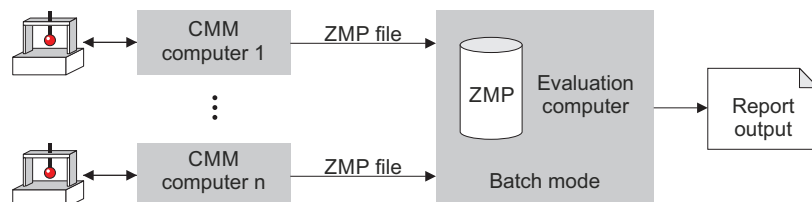
– On the CMM computer, the report output (and optionally also the calculation of the characteristics) is skipped.

– The measurement points for a subsequent evaluation are saved automatically and transferred to the evaluation computer together with the settings from the CNC start. The CMM is immediately available for the next measurement.

– The evaluation computer is in a wait state and starts with the evaluation and logging of the corresponding measurement plan after having received the data.

If the evaluation computer is used by several CMM computers, the orders are processed in the order in which they have been received.

– After the evaluation, the evaluation computer creates the defined reports and sends the corresponding data back to the CMM computer.

Additional options

You can also use the automatic subsequent evaluation in AutoRun and with FACS.

To do this, enter the PCM command `autoSubsequEval` in order to switch over the evaluation mode.

If required, the results can be sent back to the CMM computer with the help of parameterized output paths.

Preparing an automatic subsequent evaluation

Using CALYPSO, you can source out the evaluations to another computer in order to better utilize the computer connected to the CMM. The following prerequisites must be met for this function:

– CALYPSO is running on the computer connected to the CMM.

– CALYPSO is running on the evaluation computer.

– Both computers are interconnected and can access the drives of the other computer.

– The respective measurement plans are stored on both computers with the same name in the corresponding measurement plan directory.

During the automatic subsequent evaluation, the CMM computer sends a ZMP file with measurement plan ID, measuring points, report header data and start parameters to the evaluation computer.

The evaluation computer performs the computations and outputs the report.

Controlling the report output

Without further provisions, the evaluation computer displays the reports on the screen, issues them as files or sends them to a printer according to the settings in the measurement plan of the CMM computer.

The CMM computer only calculates the characteristics (except if the calculation is disabled) and does not perform any outputs.

If you want the reports and other outputs to be displayed on the CMM computer, the output paths *on the CMM computer* must be configured accordingly (➤ *Defining paths and names individually for output files [⇨ 8-45]*). For this, you can define and use PCM variables. Each CMM computer sends its own report header data which can be queried with `getRecordHeadM()` to the evaluation computer together with the measurement data. Due to the unique identification of the CMM number or the computer name, the corresponding network path for the result output is determined.

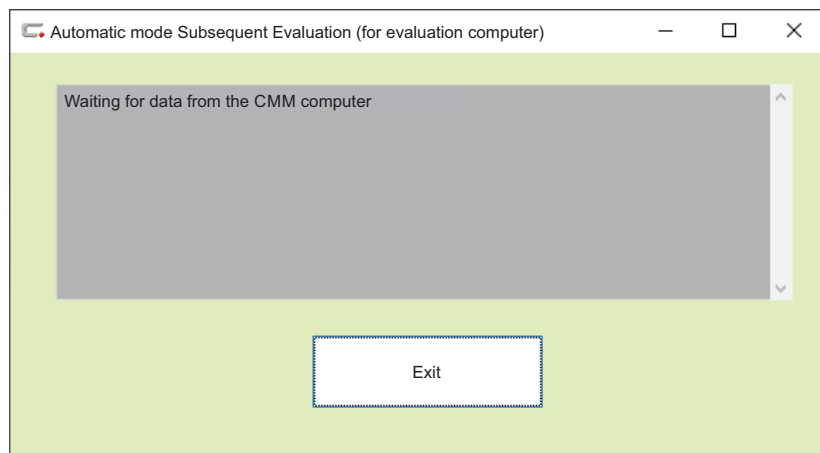## Automatic subsequent evaluation of the measurement plan

During the run of a measurement plan, you can have carried out the evaluations on a separate evaluation computer.

Conditions

– Both computers are connected via the network.

– In the system configuration of both computers, the license "Autom. subsequent evaluation" is enabled.

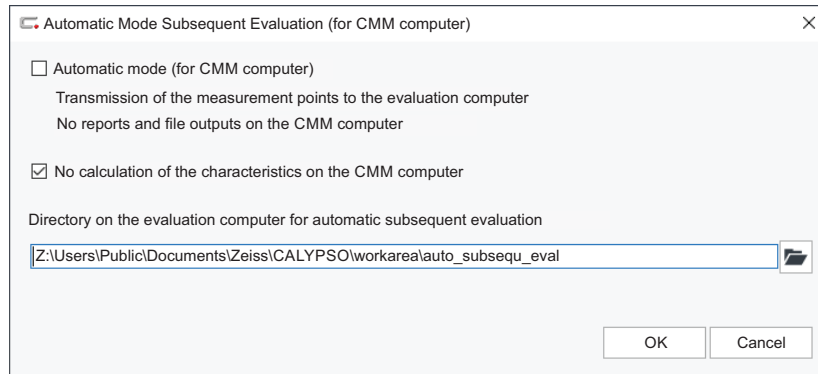– The identical measurement plan to be executed is stored in the measurement plan directory of both computers.

1   On the evaluation computer, select **CNC → Subsequent evaluation → Automatic mode on the evaluation computer**.

The window **Automatic mode Subsequent Evaluation (for evaluation computer)** opens.

CALYPSO is now locked for further operation on the evaluation computer and waits for data in the *.zmp* format in the directory *<user_directory>\workarea\auto_subsequ_eval* on the CMM computer.

2 On the CMM computer, select **CNC → Subsequent Evaluation → Automatic mode on the CMM computer**.

Automatic Mode Subsequent Evaluation (for CMM computer)	✕

☐ Automatic mode (for CMM computer)

    Transmission of the measurement points to the evaluation computer

    No reports and file outputs on the CMM computer

☑ No calculation of the characteristics on the CMM computer

Directory on the evaluation computer for automatic subsequent evaluation

Z:\Users\Public\Documents\Zeiss\CALYPSO\workarea\auto_subsequ_eval 📂

       OK   Cancel

3 Enable **Automatic mode (for CMM computer)**.

The mode is applicable system-wide for all running measurement plans and measurements.

4 If necessary, enable **No calculation of the characteristics on the CMM computer**.

In this case, the characteristics are only calculated on the evaluation computer. This setting is only useful during the run according to features.

📂 **5** Enter the directory available on the evaluation computer *<user_directory>\workarea\auto_subsequ_eval* or select it by clicking the icon in the file selection dialog.

6 Start the CNC run on the CMM computer.

The measurement plan will be processed on the CMM computer. During the run according to features, the run through the features is optionally skipped

After the measurement, the CMM computer does not make any outputs. CALYPSO is therefore immediately free for the next measurement.

The required settings for the automatic start (or AutoRun or FACS specifications) are transferred from the CMM computer to the evaluation computer together with the zmp data.

As soon as the data is available, the evaluation computer starts the evaluation and the report output.

Programmed access to measuring results

Basics about programmed access to measurement results

CALYPSO has a communication interface for transferring measurement results to other programs.

You can use this interface with the aid of a process you program. This will give you access to the measurement results of a measurement plan that is currently running or already loaded.

NOTE

Opening and closing of the communication interface as well as launching of the external program are performed by means of PCM commands. You therefore must have the CALYPSO pcm option in order to access the measurement results.

Programming languages

The external program can be programmed in all languages which can use the .NET Assemblies.

Principle

CALYPSO provides a DLL with the name `CalypsoInterface.dll` as the interface. Using this interface, a "CalypsoInterface" instance can be produced with the corresponding access methods.

The "CalypsoInterface" with its properties and functions (➤ *Syntax of the "CalypsoInterface" [⇨ 8-70]*) is used in the external program to access the measurement results and data of the measurement plan.

Access procedure

If all preconditions have been met, access to the measured values takes place in three steps:

– CALYPSO opens a communication channel (socket) to the outside world.

– CALYPSO starts the accessing external program and waits for it to end.

– CALYPSO closes the communication channel (socket) again.

CALYPSO adds three PCM commands to the measurement plan for this (➤ *Permitting access to measurement results [⇨ 8-69]*).