

openSM2 V7.0

ANALYZER

Operating Instructions

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1 Basics

1.1 What ANALYZER can do

With ANALYZER *open*SM2 monitoring files of different servers can be analyzed centrally on a Windows PC. ANALYZER consists of the manager and agents. With the comfortable user interface of the manager the user creates an analysis job, which is transferred to one or more agents and processed by them. The result is returned to the manager and represented graphically and in tabular form.

ANALYZER is part of the products *open*SM2 (BS2000/OSD)*, *open*SM2 (Solaris), *open*SM2 (Linux), *open*SM2 (Windows) and *open*SM2 (VMWare ESX Server). These products contain the manager and the corresponding agent.

* BS2000/OSD ® is a trade mark of Fujitsu Siemens Computers

Manager

The manager is running on a Windows PC. It offers a graphic user interface for defining the analysis jobs and presents the analysis results graphically and in tabular form.

Agent

The agent is running on a computer with a BS2000/OSD, UNIX, Linux or Windows system. It analyzes *open*SM2 monitoring files and transfers the requested monitored data to the manager.

The agent must be started on all computers on which monitoring files are to be analyzed. It is not linked to a privileged user ID and can be started under any user ID.

Detailed information to the agent you find here.

openSM2 monitoring file

An *open*SM2 monitoring file is a monitoring file of the monitor SM2 in BS2000/OSD or a monitoring file of a UNIX, Linux, Windows or VMWare ESX Server system allocated by an INSPECTOR agent.

The user ID under which the server is running must have read access to the openSM2 monitoring file.

openSM2 process hit list file

An *open*SM2 process hit list file is a file allocated by an INSPECTOR agent together with an *open*SM2 monitoring file in a UNIX, a Linux or a Windows system.

Analysis job

The user specifies the monitored data to be transferred to the manager in an analysis job. The analysis job can be stored in the database for analyses for reuse.

The manager is supplied with databases containing pre-defined analysis jobs for standard analyses.

Analysis result

The result of an analysis is presented at the screen and can be stored into a file and/or printed out. Additionally it can be transferred into the clipboard or other applications for further processing.

Macros

Analyses can be recorded and saved as macros. Macros can be executed in dialog mode or timecontrolled. In this way daily analysis runs can be automated.

The manager is supplied with databases containing macros for standard analyses.

Long-term files

With the manager measurement values of selected measurement variables can be stored during longer periods in compressed form in long-term files on the PC.

Options

Standard settings in the manager can be changed in the "Options" menu.

Extras

The "Extras" menu comprises several utility functions for the manager.

1.2 Notes on implementation

This section describes how to work with ANALYZER.

1.2.1 Functionality of ANALYZER

You start the agent on each server containing the *open*SM2 monitoring files you want to analyze. With the manager you define an analysis job and start the analysis.

Starting the analysis instructs the manager to send the analysis job to the agent(s). The agent analyzes the monitoring file and sends the result of the analysis to the manager, who presents the result on the PC screen.

1.2.2 ANALYZER wizard

When starting the manager for the first time the ANALYZER wizard leads you through all steps necessary to configure ANALYZER for use.

1.2.3 The analysis process

An analysis is completed in three phases:

1. Defining the analysis job

As first step you choose the data sources to be analyzed and define the analysis job specifying the desired monitored data.

2. Starting the analysis

You start the analysis with the "Start" command in the "Analysis" menu or the button in the tool bar. Before starting it should be guaranteed that the agent is running on all computers, on which monitoring files are to be analyzed.

3. Displaying the result

The result of the analysis is displayed as soon as it arrives from the agent depending on the type of the analysis.

1.2.4 Automated analysis runs

An analysis can be recorded as macro and can be executed at any time in dialog mode or timecontrolled. The functions for recording and starting macros can be found in the "Extras" menu.

1.2.5 Databases

The manager contains two databases, which you can edit. The databases are normally stored in the application data directory of the manager. For each database the path name can be modified in the "Settings" dialog box.

Database for agents

All agents, the manager is to communicate with, must be registered in the database for agents. These entries provide the information required for the communication with the agents.

Database for analyses

You can save macros and analysis jobs in the database for analyses to be reused at a later stage.

1.3 Changes since the last version

openSM2 V7.0B ANALYZER contains the following main new features over the last version:

- Display of available data sources and defined analysis jobs in the ANALYZER dialog box
- New analysis type "Generate Report"
- New option "Automatically" for analysis subintervals
- Analysis of additional configuration data in the monitoring file

openSM2 V7.0A ANALYZER contains the following main new features over the last version:

- Improved installation of the manager
- Analysis of openSM2 monitoring files of VMWare ESX Server systems
- Output of process hit lists for Linux server
- Analysis of configuration data in the monitoring file
- Simplified definition of analysis jobs by presetting of the analysis period and the output options
- Separation of data sources and values in the analysis jobg
- Improved search function for data sources
- Multiple selection of measurement variables at the definition of values
- Definition of server groups
- Display of server groups, server and monitoring files as tree view
- Creation of a server hit list during analysis of a server group
- Format of the time axis labels selectable in the chart (not as output option)
- Display of the chart (resp. several charts) instead of the result table as analysis result
- Improved selection and filter possibilities of values for the creation of charts
- Intelligent automatic creation of the title and the legende of the chart

ANALYZER V5.0A contains the following main new features over the last version:

- Analysis of openSM2 monitoring files from Windows systems
- All ANALYZER servers (exception: BS2000/OSD) can analyze openSM2 monitoring files from system external platforms (exception: BS2000/OSD)
- New function "ANALYZER Assistent", which leads the user step for step through an analysis
- Parallel display of several result tables and charts
- Output of process hit lists
- Support of terminal servers (user-specific application data directory)

ANALYZER V4.0A contains the following main new features over the last version SM2R1-PC V3.0A:

- New measurement variables for UNIX and BS2000/OSD systems
- Specification of variables for monitored objects possible
- Additional analysis modes minimum, maximum und quantile

1.4 The agent

The agent is a program which accepts analysis jobs from the manager, executes the analysis and sends the result to the manager.

The agent must be started on each computer on which monitoring files are to be analyzed.

The agent is available for BS2000/OSD systems, UNIX systems, Linux systems and Windows systems.

All agents (except BS2000/OSD agents) can analyze monitoring files from other systems (except BS2000/OSD).

1.4.1 The BS2000 agent

The commands for starting and stopping the agent are contained in the SYSSDF.SM2-TOOLS.075 syntax file. In order to make these commands available to each user, this syntax file must be activated with the following command:

```
/MODIFY-SDF-PARAMETER SCOPE=*PERMANENT,
SYNTAX-FILE-TYPE=*SUBSYSTEM(NAME=SYSSDF.SM2-TOOLS.075,
SUBSYSTEM-NAME=SM2TOOLS)
```

Starting the agent

The agent is started with the command START-ANALYZER.

Format:

START-ANALYZER

| VERSION = *STD / <product-version mandatory-man-corr=""> / <product-version mandatory-man-without-corr=""> / <product-version without-man-corr=""></product-version></product-version></product-version> |
|--|
| MONJV = *NONE / <filename 154="" without-gen-vers=""></filename> |
| CPU-LIMIT = *STD / *NO / <integer 132767=""></integer> |
| JOB-CLASS = *STD / <name 18=""></name> |
| PORT-NUMBER = 5000 / <integer 165535=""></integer> |
| MTFILE-NAME = *STD / <filename 154="" without-gen-vers=""></filename> |

Operands:

VERSION =

Specifies the program version of ANALYZER to be called.

VERSION = *STD

The current version is called.

VERSION = <product-version>

The specified version is called.

MONJV =

Specifies the name of the job variable, which is to monitor the ANALYZER run.

MONJV = *NONE

No job variable is specified.

MONJV = <filename 1..54 without-gen-vers>

Specifies the name of a job variable.

CPU-LIMIT =

Specifies the CPU time, which may be used by the ANALYZER run. If this time is exceeded the ANALYZER run is terminated.

CPU-LIMIT = *STD

The default value from the job class definition or, if applicable, the lower time allotment in the user entry is taken over as the maximum CPU time for ANALYZER.

CPU-LIMIT = *NO

There is no limit on the CPU time available to ANALYZER.

CPU-LIMIT = <integer 1..32767 >

The specified time is taken as maximum CPU time for ANALYZER.

JOB-CLASS =

Job class, in which ANALYZER is to run. The job class must be allowed for batch jobs.

JOB-CLASS = *STD

ANALYZER is running in the default job class of the target user id.

JOB-CLASS = <name 1..8>

ANALYZER is running in the specified job class.

PORT-NUMBER =

Specifies the port number of the port via which ANALYZER is to communicate with the agent. This port number must match the port number you entered for the server in the servers database. PORT-NUMBER = 5000

The port number 5000 is used as default.

PORT-NUMBER = <integer 1..65535>

The specified number is used as port number.

MTFILE-NAME =

Specifies the file name of the MTFILE to be used for the automatic analysis.

MTFILE-NAME = *STD

The MTFILE of the installed SM2 version is used for the automatic analysis.

MTFILE-NAME = <filename 1..54 without-gen-vers>

The specified MTFILE is used for the automatic analysis.

Terminating the Agent

The agent is terminated with the command STOP-ANALYZER. Format: STOP-ANALYZER VERSION = *STD / <product-version mandatory-man-corr> / <product-version mandatory-man-without-corr> / <product-version without-man-corr> MONJV = *NONE / <filename 1..54 without-gen-vers> CPU-LIMIT = *JOB-REST / <integer 1..32767>

Operanden:

VERSION =

Specifies the program version of STOPANALYZER to be called.

VERSION = *STD

The current version is called.

VERSION = <product-version>

The specified version is called.

MONJV =

Specifies the name of the job variable, which is to monitor the STOPANALYZER run.

MONJV = *NONE

No job variable is specified.

MONJV = <filename 1..54 without-gen-vers>

Specifies the name of a job variable.

CPU-LIMIT =

Specifies the CPU time, which may be used by the STOPANALYZER run.

CPU-LIMIT = *JOB-REST

The remaining CPU time of the task is taken as maximum CPU time for STOPANALYZER.

CPU-LIMIT = <integer 1..32767 >

The specified time is taken as maximum CPU time for STOPANALYZER.

Log file of the agent

All actions of the agent are logged in the

S.OUT.ANALYZER.<tsn>.<yyyy>-<mm>-<dd>.<hhmmss>

file. The agent also writes any error messages to this file, e.g. if it terminates abnormally.

1.4.2 The UNIX agent

Start and stop

For starting the UNIX agent the shell procedure "start.analyzeragt" is available, which you start on the server. The UNIX agent remains active until it is terminated with the shell procedure "stop.analyzeragt".

Entering the port number in the shell procedure "start.analyzeragt"

In the shell procedure "start.analyzeragt" the port number of the port via which the manager is to communicate with the agent is passed to the agent as argument.

This port number must match the port number you entered for the agent in the managers database for agents.

When the shell procedure is supplied, 5000 is entered as the port number.

Log file

All actions of the UNIX agent are logged in the file "analyzeragt.log". The agent also writes any error messages to this file, e.g. if it terminates abnormally.

1.4.3 The Linux agent

Start and stop

For starting the Linux agent the shell procedure "start.analyzeragt" is available, which you start on the server. The Linux agent remains active until it is terminated with the shell procedure "stop.analyzeragt".

Entering the port number in the shell procedure "start.analyzeragt"

In the shell procedure "start.analyzeragt" the port number of the port via which the manager is to communicate with the agent is passed to the agent as argument.

This port number must match the port number you entered for the agent in the managers database for agents.

When the shell procedure is supplied, 5000 is entered as the port number.

Log file

All actions of the Linux agent are logged in the file "analyzeragt.log". The agent also writes any error messages to this file, e.g. if it terminates abnormally.

1.4.4 The Windows agent

Start and stop

For the Windows agent a local service is installed on the Windows system by which the agent can be started and stopped manually.

Entering the port number in the configuration file "analyzeragt.config"

In the application directory of the Windows agent the configuration file "analyzeragt.config" is located. In this file the port number of the port via which the manager is to communicate with the agent is specified with the line

PORTNUMBER=nnnn

This port number must match the port number you specified for the agent in the managers database for agents.

When the configuration file is supplied, 5000 is entered as the port number.

Log file

All actions of the Windows agent are logged in the file "analyzeragt.log". This file is located in the application directory of the Windows agent. The agent also writes any error messages to this file, e.g. if it terminates abnormally.

2 Macros

Analyses can be recorded and saved as macros. Macros can be executed at any time. In this way it is possible to automate regular analyses.

The databases with standard analyses contain pre-defined macros for standard analyses.

2.1 Recording of a macro

You start the recording with the "Start Recording" command in the "Macro" submenu of the "Extras" menu.

During the recording you can perform the following actions:

- Open analysis job
- Edit variables
- Start analysis
- Save result table
- Create, edit, save and print chart
- Save and print report
- Save and print automatic analysis
- Save and print configuration

You can perform these actions also several times successively.

The analysis job and the data sources must be stored in the database for analyses. You can modify the data source when executing the macro by specifying the agent and the monitoring file by an option. In the definition of the analysis job you can also use the date variable and user-defined variables for the specification of the agent and the monitoring file as well as the file name for storing the result table and the chart. The value of user-defined variables can be modified by an option when executing the macro.

With the "Stop Recording" command in the "Macro" submenu of the "Extras" menu you terminate the recording and open the "Save Macro" dialog box, where you can store the macro.

With the "Edit" command in the "Macro" submenu of the "Extras" menu you can modify a recorded macro in the "Edit Macro" dialog box.

2.2 Execution of a macro

There are two ways to execute a macro:

1. In the manager:

Click on the "Execute..." command in the "Macro" submenu of the "Extras" menu. The "Execute Macro" dialog box is displayed, where you can select the macro to be executed and specifiy the options for the execution.

2. in Windows:

If you want to execute the macro immediately click on the "Start" button in the task bar, then click on "Execute" and enter the following text in the "Open" field:

<path>Analyzer -m <macro> [-s <log file>] [-p <analysis period>] [-d <data source>]

[-r <result table file>] [-g <chart file>] [-l <long-term file>] [-v <variable>=<value>]

[-t <title of analysis>] [-x <excel macro>]

<path> defines the application directory, i.e. the directory in which "Analyzer.exe" is located.

You can execute the macro also time-controlled by using the task scheduler.

Further information for time-controlled execution you find in the help to Windows under the glossary word "scheduled tasks".

Options:

The arguments of the options must be set in quotes, if they contain a hyphen, blanks or special characters (e.g. \$, &, #).

-m <macro>

<macro> defines the name, under which you stored the macro.

-s <log file>

If this option is specified, the macro execution runs in the background and is logged in the file <log file>. If the file is specified without path it is allocated in the application data directory.

-d <data source>

With this option you can specify the data source for the analysis. The data source is to be specified in the format <agent>:<monitoring file>. Data sources defined in the analysis job are replaced by this specification.

-p <analysis period>

As <analysis period> you specify the overall period for the evaluation in the format <from> - <to>, where <from> and <to> must be specified in the format YYYY-MM-DD HH:MM:SS. If this option is not specified, the overall period defined in the analysis job is taken.

-g <graphics file>

<graphics file> specifies the file into which the chart is to be stored. The file must be specified without file extension. The format (metafile, bitmap or Word document) corresponds to the format used during the recording of the macro. The file name can contain a date variable and user-defined variables. If the file is specified without path it is allocated in the application data directory.

If this option is not specified, the file name specified during the macro recording is used.

-r <result table file>

<result table file> specifies the file into which the result table is to be stored. The file must be specified without file extension. The format (result table or Excel) corresponds to the format used during the recording of the macro. The file name can contain a date variable and user-defined variables. If the file is specified without path it is allocated in the application data directory.

If this option is not specified, the file name specified during the macro recording is used.

-l <long-term file>

<long-term file> specifies the long-term file to be augmented. If the file is specified without path it is expected in the application data directory.

If this option is not specified, the long-term file specified in the analysis job is used.

-v <variable>=<value>

With this option you assign a value to a user-defined variable. <variable> defines the name of the variable and <value> the value, which is to be assigned to the variable.

-t <title of analysis>

<ti>title of analysis> specifies the title, which appears as heading in the chart. The title can contain a date variable and user-defined variables.

If this option is not specified, a meaningful title is generated automatically.

-x <excel macro>

With this option you can specify an Excel macro, which is to be executed after saving the result table as Excel file.

The Excel macro is to be specified in the format <excel file>!<macro name>. If the file is specified without path it is expected in the application data directory.

2.2.1 Examples for executing a macro

Example 1:

An analysis of type "Create Charts" was recorded as macro und saved under the name "CPU". In the analysis job no data source was defined.

With the following instruction the macro "CPU" is executed in order to have the monitoring file D:\Data\mwd.MCP0123C.2006-05-03 analyzed from 07:00 AM to 07:00 PM on May 3rd, 2006 by the agent on the computer mcp0123c:

"C:\Program Files\openSM2 V7.0\ANALYZER Manager\Analyzer" -m CPU -s CPU.log -d "mcp0123c:D:\Data\mwd.MCP0123C.2006-05-03" -p "2006-05-03 07:00:00 - 2006-05-03 19:00:00"

Example 2:

An analysis of type "Augment Long-Term File" was recorded as macro und saved under the name "LTF". In the analysis job as data source the variable "&AGENT" was specified for the agent and "*CURRENT" for the monitoring file.

With the following instruction the macro "LTF" is executed in order to augment the long-term file of the server ZE05H007 from the current SM2 monitoring file.

"C:\Program Files\openSM2 V7.0\ANALYZER Manager\Analyzer" -m LTF -s LTF.log -I "C:\Data\ZE05H007.ltd" -v "&AGENT=ZE05H007"

3 Long-term files

The long-term files of ANALYZER offer the possibility of storing measurement values of selected measurement variables during longer periods in compressed form on the PC. A long-term file can be analyzed like a monitoring file on a server.

3.1 Create a new long-term file

In order to create a new long-term file, you must create first the definition of the long-term file. For this purpose you indicate an interval size and determine the measurement variables, whose measurement values are to be stored in the long-term file. The definition of the long-term file is stored together with the monitored data in the long-term file.

You create the definition of a long-term file in the "New Long-Term File" dialog box, which is opened with the "New..." command in the "Long-Term Files" menu.

You must create a long-term file for each server, for which you want to make long-term analyses. If you want to use the same definition for several servers, you can copy an already created long-term file, which still contains no monitored data, several times under other names.

3.2 Modifying a long-term file

You can modify the definition of a long-term file by setting the interval size to a multiple of the original size or add or delete measurement variables.

You modify the definition of a long-term file in the "Modify Long-Term File" dialog box, which is opened with the "Modify..." command in the "Long-Term Files" menu.

3.3 Augment a long-term file

By augmenting the transfer of monitored data from a monitoring file on a server into a long-term file on the PC is to be understood, whereby the monitored data of several monitoring intervals are compressed to larger intervals. The interval size is specified for the definition of the long-term file.

In order to augment a long-term file, you select the analysis type "Augment Long-Term File" and specify the long-term file, an analysis period and the data source for the measurement values, i.e. the server and the monitoring file.

For this you first click on the "Augment Long-Term File" command in the "New" submenu of the "Analysis" menu or on the appropriate button in the tool bar. Subsequently, you enter the specification to the areas "Analysis Period", "Data Source" and "Long-Term File". You open the dialog box for the input with the commands in the "Define Job" submenu of the "Analysis" menu or with the appropriate button in the tool bar.

In order to augment a long-term file daily from the current monitoring file of a server, it is recommendable to record an analysis run as macro and to execute this macro time-controlled.

3.4 Analyze a long-term file

The analysis of long-term files essentially corresponds to the analysis of monitoring files on a server. You can select all measurement variables, which were specified in the definition of the long-term file. In an analysis run a single long-term file or several long-term files can be analyzed simultaneously.

The result of the analysis job is output as chart and in the form of a result table and can be saved in a file or the clipboard for further processing by appropriate programs.

In order to analyze a long-term file, you select the analysis type "Analyze Long-Term Files" and specify an analysis period, the measurement variables and output options.

For this you first click on the "Analyze Long-Term Files" command in the "New" submenu of the "Analysis" menu or the appropriate button in the tool bar. Subsequently, you enter the specification to the areas "Analysis Period", "Values" and "Output Options". You open the dialog boxes for the inputs with the commands from the "Define Job" submenu of the "Analysis" menu or with the appropriate buttons in the tool bar.

4 Analyses

There are different types of analyses:

- Create Charts
- Generate Report
- E Perform Automatic Analysis
- Bhow Configuration
- Augment Long-Term File
- Analyze Long-Term Files

Before you start an analysis, you must choose the data sources to be analyzed and define an analysis job.

4.1 Types

4.1.1 Create Charts

With an analysis of type "Create Charts" you can display the progress in time of the measurement values of several measurement variables or the correlation of the measurement values of two measurement variables. The measurement variables can be specified by report group, report and measurement variable. Single measurement variables can be linked by a formula. You can analyze either a single monitoring file or several monitoring files simultaneously. These files may reside on various servers. During the analysis of a single monitoring file the analysis of the process hit list file belonging to the monitoring file can be requested.

The result of the analysis is displayed as a chart and can be output in a result table.

4.1.2 Generate Report

With an analysis of type "Generate Report" you can create an overview over several servers. An inventory and tables with selected monitoring data are generated.

The result of the analysis is displayed in the "Report" dialog box.

4.1.3 Perform Automatic Analysis

With an analysis of type "Perform Automatic Analysis" you can perform an automatic bottleneck analysis for a BS2000/OSD server.

The result of the automatic analysis is represented as structured list of messages, which can be printed and saved.

4.1.4 Show Configuration

With an analysis of type "Show Configuration" you can output the system configuration of a BS2000/OSD server.

The configuration is edited in a tree structure and can be saved, printed out graphically and searched for certain devices.

4.1.5 Augment Long-Term File

With an analysis of type "Augment Long-Term File" you can augment a previously defined long-term file with monitored data from a monitoring file.

Augmenting is understood to consist of the compression and transfer of monitored data to a long-term file on the PC.

The result of the augmentation is displayed int the Result Of Long-Term File Augmentation dialog box.

4.1.6 Analyze Long-Term Files

With an analysis of type "Analyze Long-Term Files" you can analyze the progress in time of the measurement values of several measurement variables or the correlation of the measurement values of two measurement variables from a long-term file. All measurement variables can be selected, for which measurement values are stored in the long-term file.

You can analyze either a single long-term file or several long-term files simultaneously.

The result of the analysis is displayed as a chart and can be output in a result table.

4.2 Data Sources

By the specification of a data source you determine, from where the monitoring data to be analyzed are to be taken.

A data source is defined as follows:

- Explicit specification of a monitoring file and the agent responsible for the analysis
- Specification of a server whose monitoring data are to be analyzed
- Specification of a server group whose monitoring data are to be analyzed

With the specification of a server or a server group as data source the relevant monitoring files are determined automatically. If the monitoring data of a server for the desired analysis period are in several monitoring files, it is reasonable to connect the monitoring files to one file before the evaluation. In UNIX and Linux you use for this the "cat" command, in Windows the "copy" command.

In an analysis job of type "Perform Automatic Analysis", "Show Configuration" or "Augment Long-Term File" only one data source can be selected by explicit specification of a monitoring file and the agent responsible for the analysis.

Servers

With the specification of a server as data source the monitoring files relevant for the specified analysis period are determined automatically. With the specification * START - * STOP for the analysis period all monitoring files are evaluated.

In an analysis job serveral servers and several values can be analyzed.

If servers are specified as data sources, there are some restrictions:

- For each value in the analysis job one value per analyzed monitoring file is supplied in the anlysis result.
- A partially qualified specification of monitored objects is not possible if more than one monitoring file is analyzed.

Server groups

Server groups serve to pool several servers in order to analyze their monitoring data together. A server group can contain only servers of the same type - BS2000, UNIX, Linux, Windows or ESX.

For the creation of charts from the result of an analysis of a server group you can specify conditions for the selection and criteria for the assortment of the servers. In this way you can provide e.g. a fast overview of the servers with the highest or lowest utilization.

If a server group is specified as data source, there are some restrictions:

- For each server only one monitoring file is analyzed, whereby the monitoring file is selected, which corresponds best to the analysis period.
- A partially qualified specification of monitored objects is not possible.

Edit server groups

With the "Server Groups..." button in the Available Data Sources dialog box you open the "Edit Server Groups" dialog box, where you can enter new server groups and modify or delete existing entries.

4.3 Analysis job

Before you start an analysis, you must define an analysis job by determining the desired monitored data.

The manager is supplied with databases containing pre-defined analysis jobs for standard analyses. In the ANALYZER dialog box, which is opened when the manager is started, you can define a new analysis job, open an analysis job stored in the database for analyses and start an analysis.

What do I have to specify for an analysis job ?

First you select the type of the analysis in the "New" submenu of the "Analysis" menu or with the appropriate button in the tool bar of the ANALYZER dialog box:

You then must define several areas. You can edit each area with the appropriate command in the "Define Analysis Job" submenu of the "Analysis" menu or with the appropriate button in the tool bar or with the "Modify" button in the appropriate display area of the ANALYZER dialog box.

| | Area | | | | | | | | | |
|-------------------------------|--------------------|--------|-------------------|----------------|-------------------|--|--|--|--|--|
| Analysis type | Analysis period | Values | Output options | Parameter s | Long-term file | | | | | |
| Create Charts | 3 | ×2y | | | | | | | | |
| Generate Report | 30 10 10 | ×2y | ₽. | | | | | | | |
| Perform Automatic Analysis | € 3 | | | F | | | | | | |
| Show Configuration | 3 | | | | | | | | | |
| Augment Long-Term File | € 3 | | | | N | | | | | |
| Analyze Long-Term Files | 8 | ×zy | | | | | | | | |

The following table shows the areas to be defined depending on the type of the analysis:

The areas "Analysis Period", "Output Options" and "Parameters" are preset with defaults and need not be specified.

The analysis can only be started when all relevant areas have been defined.

Analysis jobs you have defined can be stored for reuse in the database for analyses.

4.3.1 Analysis Period

In the Analysis Period area, the monitoring cycles of the monitoring file or the intervals of the long-term file to be considered in the analysis are defined for an analysis job.

If a number of files are analyzed in the analysis job, the analysis period specifications apply to all of these files.

You can use the "Analysis Period" dialog box to edit the analysis period.

The Analysis Period area is divided into three sections: Overall Period, Time Windows, and Exception Periods.

Overall Period

In the Overall Period section you define the period to be analyzed. Only those monitoring cycles resp. intervals whose time stamps lie within the specified period are considered.

The time axis is created on the basis of the overall period specified, if the option "Overall Period" is selected for "Type Of Time Axis" in the Output Options dialog box.

Time Windows

In the Time Windows section you can select time windows from the overall period. Up to three time windows can be specified.

If you specify time windows, the only monitoring cycles resp. intervals of the overall period which are considered in the analysis are those whose time stamps lie within one of the time windows.

The time axis is created on the basis of the time window specification if the option "Time Windows" is selected for "Type Of Time Axis" in the Output Options dialog box.

A sample application illustrating the effects of setting "Time Windows" for "Type Of Time Axis" can be found under "Example Type Of Time Axis" in the appendix.

Exception Periods

In the Exception Periods section you can exclude either fixed periods or certain recurring periods such as weekdays or weekends. For the analysis of SM2 monitoring files you can also specify a calendar file; all days are then excluded, which are characterized as free days in the calendar file.

The possibility to exclude periods particularly supports long-term analyses. You can specify up to three exception periods.

All monitoring cycles resp. intervals whose time stamps lie within the exception periods are ignored in the analysis.

"Example Type Of Time Axis" in the appendix illustrates the usage of exception periods.

4.3.2 Values

For the analysis types "Create Charts", "Generate Report", "Augment Long-Term File" and "Analyze Long-Term Files" you specify values to determine which monitoring data is to be supplied.

Composition of value

A value can comprise either a single measurement variable or several measurement variables linked by a formula.

Analysis mode

For the analysis of a measurement variable you can select between average values, the percentage frequency distribution, minimum, maximum und quantile.

The average value for each analysis subinterval is calculated by forming the arithmetic mean of the values of all monitoring cycles lying within the analysis subinterval.

The frequency distribution gives the percentage of the values of a subinterval, which are situated within a given range. Thus questions can be answered like: "In how much percent of the analyzed cycles the response time was situated between 0.5 and 1.0 seconds?".

With the analysis mode minimum resp. maximum for each analysis subinterval the smallest resp. largest measurement value of all monitoring cycles with time stamps lying within the analysis subinterval is supplied.

With the analysis mode quantile for each analysis subinterval the specified quantile of the measurement values of all monitoring cycles with time stamps lying within the analysis subinterval is supplied.

Defining and changing values

You can use the "New Value" dialog box to define new values, and the "Modify Value" dialog box to modify these values.

Creating hit lists for analysis type "Create Charts"

You can create hit lists for the measurement variables of reports which supply monitoring data for a variable number of monitored objects, i.e. monitored data is supplied for the monitored objects with the highest mean values in the analysis period.

To this end, choose the option "Single Measurement Variable" for "Composition Of Value" in the New Value / Modify Value dialog box.

Specify a partially qualified monitored object for the measurement variable. This allows you to analyze the monitored data for all monitored objects which correspond to the partial qualification.

The hit list is made up of the monitored objects which have the highest mean values over the analysis period. The number of items in the hit list is defined by specifying the "Max. No. Monitored Objects In

Partial Qualification". A column with monitoring data is output in the result table for each item in the hit list.

A sample application illustrating the creation of hit lists can be found in the appendix.

4.3.3 Output Options

In the Output Options area, the type of the time axis and the division of the time axis into analysis subintervals are defined for an analysis job of type "Create Charts", "Generate Report" or "Analyze Long-Term Files".

For analysis jobs of type "Create Charts" you can specify whether the process hit list file belonging to the monitoring file is to be analyzed.

You can use the "Output Options" dialog box to edit the output options.

4.3.4 Parameters

In the Parameters area, the main application and the important categories are defined for an analysis job of type "Perform Automatic Analysis".

You can use the Parameters dialog box to edit the parameters.

4.3.5 Long-term file

In the Long-Term File area, the long-term file to be augmented is defined for an analysis job of type "Augment Long-Term File". Additionally you define whether measurement values of intervals, which are already available in the long-term file, are to be overwritten with new measurement values.

You can use the Long-Term File dialog box to edit the long-term file.

5 Result of an analysis job

5.1 Chart

The result of an analysis of type "Create Charts" or "Analyze Long-Term Files" is displayed as a chart. With the "Time Series" or "Correlation" command of the "Chart" menu in the "Result Tables" dialog box or the "New" submenu of the "File" menu in the "Charts" dialog box you can create additional charts.

The chart can be modified in many ways, printed, and saved to a file or in the clipboard.

There are two types of charts: Time series and correlation.

Time series

In a chart the measurement values of up to 20 measurement variables can be represented. The measurement values are plotted over a time axis.

Correlation

In a chart the measurement values of two measurement variables are represented, whereby the measurement values of one measurement variable are plotted on the horizontal axis and those of the other measurement variable on the vertical axis. With this chart you can check whether a functional dependency exists between the two measurement variables.

Diagram types and styles

A set of diagram types is available with numerous style options for presenting the values:

- Pie charts
- Line charts
- Area charts
- Bar charts
- Scatter chart

Diagram types and negative values

The following diagram types cannot display negative values correctly:

- Pie charts
- Line charts with a logarithmic axis
- Area charts
- Stack bar charts

In pie, area or bar charts negative numbers are represented as null values.

In line charts with a logarithmic axis negative numbers on the logarithmic axis are not represented, i.e. no value appears in the diagram.

Diagram types and zero values

Zero values on the logarithmic axis cannot be represented in line charts with a logarithmic axis, i.e. no value appears in the diagram.

Representation of analysis title and additional information

The analysis title from the Title cell in the result table appears in the chart above the diagram. The additional information from the Additional Information cell in the result table appears in the chart below the diagram.

Legend of values

If you specified the text for legend in the "New Value / Modify Value" dialog box, the legend is compiled from the contents of the Text Value... and Mon. Obj. Value... cells in the result table. If the legend is too long, it is truncated in the chart. Otherwise a meaningful legend is automatically generated depending on the analysis job.

Printing the chart

You can print a chart by clicking on the "Print..." command in the "File" menu of the "Chart" dialog box. If you are printing to a monochrome printer, it may be advisable to switch the presentation mode of the chart to monochrome. If you print in color to a monochrome printer, the printer uses shades of gray instead of the colors. This may produce an undesirable effect, although colors are frequently converted to either black or white.

Saving the chart

You can save a chart to a file or in the clipboard by clicking on the "Save..." command in the "File" menu of the "Chart" dialog box.

Displaying process hit lists

If the analysis of the process hit list file was requested as output option, with the "Show Process Hit List" command in the "Display" menu a process hit list can be displayed for each interval in a time series diagram.

5.2 Result table

The result of an analysis job of type "Create Charts" or "Analyze Long-Term File" can be displayed in the form of a result table and can be edited.

The result table can be saved in the clipboard or in a file.

5.2.1 Structure of the result table

The structure of the result table is particularly suitable for analysis with Excel macros.

The result table is divided into cells. It contains information on the analysis and provides statistical data for each value as well as the mean value for each analysis subinterval on the time axis.

Structure of a result table with m values and n analysis subintervals

A result table with m values and n analysis subintervals is structured as described below.

Number of analysis subintervals

The number n of analysis subintervals is calculated from the specifications of the analysis period and output options.

Arrangement of value results

The results of the analysis are output in a column for each value.

The columns are arranged in the sequence in which the values were specified in the analysis job.

Number of values

In general, one column is assigned to each value.

Exception: If a value was defined for creating a hit list, a column is output for each item of the hit list.

This means that the number m of values whose results are output in the result table is larger than the number of values specified in the analysis job.

| Title | 1 | 2 | m |
|-------------------------------------|--|-------------------------------|-----------------------------------|
| overall period | additional information for time axis | | |
| number of time windows | | | |
| time window 1 | | | |
| time window 2 | | | |
| time window 3 | | | |
| number of exception periods | | | |
| exception period 1 | | | |
| exception period 2 | | | |
| exception period 3 | | | |
| number of analysis subintervalls | error value 1 | error value 2 | error value m |
| number of values | text value | text value 2 | text value m |
| | measurement object value 1 | measurement object value 2 | measurement object value m |
| | cpu type value 1 | cpu type value 2 | cpu type value m |
| | sever name value 1 | sever name value 2 | sever name value m |
| mean value | mean value value 1 | mean value value 2 | mean value value m |
| standard deviation | standard deviation value 1 | standard deviation value 2 | standard deviation value m |
| minimum | minimum value 1 | minimum value 2 | minimum value m |
| maximum | maximum value 1 | maximum value 2 | maximum value m |
| Id 1st analysis subintervall | size value 1 | size value 2 | size value m |
| Id 2nd analysis subintervall | size value 1 | size value 2 | size value m |
| | 5110 74140 1 | | |
| · · · | : | - | |
| | | | - - - - |

Result table with m values and n analysis subintervals

5.3 Report

The result of an analysis of the type "Generate Report" is displayed in the "Report" dialog box.

The dialog box consists of the Measurement, Inventory and Mean Values tab as well as a tab for each value in the analysis job (see description of the dialog box).

You can save the report in a file and print it.

5.4 Configuration

The result of an analysis of the type "Show Configuration" is displayed in the "Configuration" dialog box. This dialog box consists of two display areas: a structure tree in the left half of the dialog box and a list box in the right half of the dialog box.

The structure tree shows a hierarchical list of nodes, which are formed from items of the configuration. The first hierarchic level is formed by the IOSIDES (if available), the next levels are the channels (CHANNEL), the device controllers (CONTROLLERS) and the attached devices (DEVICES).

In the display area above the structure tree the server name is displayed.

The list box shows a listing of all items, which are in the hierarchic level below the node marked in the structure tree. The display area above the list box contains the hierarchic levels above the node marked in the structure tree in the form BS2000/[IOSIDE/]CHANNEL/CONTROLLER/DEVICE.

If the option "detail" is selected for the list box, further information to the list items is output dependent on the type of the items in the list.

Informations for channels:

Channel Path ID hexadecimal channel number Type type of channel (Byte-Multiplex, Block-Multiplex) Informations for controllers: MN mnemonic name of controller Informations for devices: MN mnemonic device name VSN volume sequence number (if available) Path IO path, i.e. channel (4 characters) and device address (2 characters) **Device Group** name of device group **Device Type** external designation of the device Code system-internal device code Block Format block format of disks (K2, NK2, NK4) Attributes device attributes: DFT Detached Device: the device exists within the configuration, however it is not available at the present time. PAG Paging Device: the device is used for paging. PRV Private Device: the device is exclusively assigned to a task. SHR

Shared Private Disk: the device is a private disk, which can be used from several systems. **sys**

System Private Disk: the device is a private disk, which can be used from several tasks.

5.5 Automatic analysis

The result of the automatic analysis is displayed in the "Automatic Analysis" dialog box (see description of the dialog box).

5.6 Augment Long-Term File

The result of the augmentation is displayed int the "Result Of Long-Term File Augmentation" dialog box (see description of the dialog box).

6 Description of dialog boxes

6.1 The Agents dialog box

"Edit..." command in the "Agents" menu

In this dialog box you can enter new agents as well as modify and delete entries.

| 🗷 Agents | | | | |
|---------------|------------|-------------|---|-----------------|
| Computer Name | IP Address | Port Number | Search Path For Monitoring Files | New |
| MCP0336C | *BY-NAME | 5000 | C:\Program Files\openSM2 V7.0\Inspector Age | |
| abg0002c | *BY-NAME | 5000 | /home/opensm2/Inspector/V7.5 | Madife |
| mcp0332c | *BY-NAME | 8144 | D:\openSM2_V7.0\Analyzer\Data | <u>M</u> oully |
| D016ZE04 | *BY-NAME | 5000 | \$MESSEN.SM2.MWD. | |
| | | | | <u>D</u> elete |
| | | | | |
| | | | | Import |
| | | | | |
| | | | | Test Connection |
| | | | | |
| | | | | |
| | | | | Class |
| | | | | |
| | | | | Help |

Dialog box options

The table contains the specifications for the registered agents.

Computer Name

Name of the computer the agent is running on.

IP Address

IP address of the computer the agent is running on.

Port Number

Port number for the communication with the agent.

Search Path For Monitoring Files

Path for the search for data sources.

New

Opens the "Edit Agent" dialog box, where you can enter a new agent.

Modify

Opens the "Edit Agent" dialog box with the specifications for the agent marked in the table. In this dialog box you can modify the specifications for the agent.

Delete

Deletes the agent or the agents marked in the table.

Import

Reads the specifications for the agents from file.

For each agent, the file must contain a line with the following specifications separated by tabs, semicolons, commas or blanks:

- name of the computer the agent is running on
- IP address of the computer the agent is running on (optional)
- port number for the communication with the agent (optional)
- Path for the search for data sources.

If the IP address is not specified, *BY-NAME is entered as IP address.

If the port number is not specified, the default port number 5000 is entered.

Test Connection

Tests the connection to the agent marked in the table.

An attempt is made to reach the agent on the computer specified for "Computer Name" using the IP address specified for "IP Address" via the port number specified for "Port Number". If the connection test is successful, a message is output indicating that the agent is active.

This test allows you to check whether the specifications are correct or whether the agent is started

6.2 The ANALYZER dialog box

The dialog box consists of a menu bar, display areas and a tool bar with buttons for editing the analysis job displayed in the display areas, for starting the analysis and for presenting the result.

| ANALYZER [Create Charts] - Window | wsStandard: CPUTime | | | _ 🗆 🛛 |
|---|---------------------------------|-------------------|-----------------|-----------------|
| Analysis Data Sources Agents Long-Terr | n Eiles Optjons E⊻tras <u>?</u> | | | |
| D 🛩 🖬 💷 🖺 🗄 🛅 🗚 🦁 | ジング 🎋 🎽 🕨 🔁 💷 😰 | | | |
| Available Data Sources | Data Sources Analysis Job | | | |
| 🖻 🕷 BS2000 | - Analysis Period | | | |
| ⊕ 0162E04 ⊕ 00162E07 | Analysis i chou | HOTADT HOTOD | | |
| + 0 D0162E15 | Overall Period: | FSTARTSTUP | | |
| ⊕ D016ZE05 □ □ | Time Windows: | | | |
| ⊟-\$\$\$ UNIX | | , | | |
| B-0 D018V070 | Exception Periods: | 1 | | |
| | | | | |
| ± 0 ABG0002C | | | | Mod <u>i</u> ty |
| | Malaa | | | |
| | Values | | | |
| ⊟108 SO13 | Report Group | Value | Text For Legend | |
| | CPU-Total | DisvilagedTime[%] | *4110 | |
| mwd.MCP0332C | CPU-Total | InterruptTime[%] | *AUTO | |
| | CPU-Total | IdleTime[%] | *AUTO | |
| | | | | |
| Defined Analysis Jobs | | | | |
| UNIXStandard: NetOutBytes | | | | |
| UNIXStandard: NetOutPackets | | | | |
| UNIXStandard: Paging | | | | |
| UNIXStandard: Swapping | | New | Madify Copy | Delete |
| WindowsStandard: CPUQueue | | | | |
| WindowsStandard: CPUTime | - Output Options | | | |
| WindowsStandard: CPOTotal T | | Overall Period | | |
| WindowsStandard: DiskQueue | Type Of Time Axis: | Joverali Period | | |
| | Analysis Subintervals: | Automatic | | |
| WindowsStandard: DiskRead(| | THUTO | | |
| WindowsStandard: DiskRead | Analysis Title: | FAUTU | | |
| WindowsStandard: DiskTime | Analyze Process Hit List File | No | | |
| WindowsStandard: DiskTranst | , | | | |
| WindowsStandard: DiskWriteE 🗸 | | | | Modify. |
| | | | | |

Dialog box options of the menu bar resp. tool bar

Analysis

Opens the list of commands for editing analysis jobs, starting the analysis and presenting the result.

D New

Resets all specifications for the analysis to the default values.

Туре

Opens the submenu for selecting the analysis type. The display areas are arranged for the selected analysis type.

L Create Charts

Selects an analysis of the type "Create Charts".

Generate Report

Selects an analysis of the type "Generate Report".

Perform Automatic Analysis

Selects an analysis of the type "Perform Automatic Analysis".

Bhow Configuration

Selects an analysis of the type "Show Configuration".

Augment Long-Term File

Selects an analysis of the type "Augment Long-Term File ".

Analyze Long-Term Files

Selects an analysis of the type "Analyze Long-Term Files".

Define Job

Opens the submenu for editing the specifications for the analysis job displayed in the display areas. The entries in the submenu depend on the selected type of analysis.

🚱 Analysis Period...

Opens the "Analysis Period" dialog box. In this dialog box you can define the analysis period for all analysis types.

Zy Values...

Opens the submenu for editing the values for the analysis types "Create Charts", "Generate Report" and "Analyze Long-Term Files".

New...

Opens the "New Value" dialog box. You can define a new value in this dialog box.

Modify...

Opens the "Modify Value" dialog box with the specifications of the marked value. You can change the value in this dialog box.

Сору

Copies the marked value. The copy is appended to the end of the list.

Delete

Deletes the marked value.

BOutput Options...

Opens the "Output Options" dialog box. In this dialog box you can define the output options for the analysis types "Create Charts", "Generate Report" and "Analyze Long-Term Files".

Parameters...

Opens the "Parameters" dialog box. In this dialog box you can define the parameters for the analysis type "Perform Automatic Analysis".

🗹 Long-Term File...

Opens the "Long-Term File" dialog box. In this dialog box you can define the long-term file for the analysis type "Analyze Long-Term Files".

൙ Open Job...

Opens the "Open Analysis Job" dialog box. In this dialog box you can open an analysis job saved in the database.

📕 Save Job...

Opens the "Save Analysis Job" dialog box. In this dialog box you can save an analysis job in the database.

Delete Job...

Opens the "Delete Analysis Jobs" dialog box. In this dialog box you can delete saved analysis jobs from the database.

Start

Starts the analysis. The analysis job is sent to the agent(s). As soon as the result arrives it is displayed depending on the type of the analysis in the "Charts" dialog box, the "Report" dialog box, the "Automatic Analysis" dialog box, the "Configuration" dialog box resp. the "Result Of Long-Term File Augmentation" dialog box.

how Result

Opens the dialog box with the result of the analysis. Depending on the type of the analysis the "Charts" dialog box, the "Report" dialog box, the "Automatic Analysis" dialog box, the "Configuration" dialog box resp. the "Result Of Long-Term File Augmentation" dialog box is opened.

Show Result Tables

Opens the "Result tables" dialog box, where the result of the analysis is displayed in tabular form for the analysis types "Create Charts" and "Analyze Long-Term Files".

Exit

Terminates the manager.

Data Sources

Opens the list of commands for editing the data sources.

Kearch...

Causes the agents to search the existing data sources. If more than one agent is registered a dialog box is opened where you can select the agents to be ordered with the search.

The found data sources are displayed in the display area "Available Data Sources".

New...

Opens the "Select Data Source" dialog box, where you can select a new data source by explicit specification of the agent and the monitoring file.

This function is not available if already a server or a server group was selected as data source.

Modify...

Opens the "Select Data Source" dialog box with the specifications of the data source marked in the table. In thid dialog box you can modify the specifications of the data source.

This function is only available for data sources which are selected by explicit specification of the agent and the monitoring file.

Delete

Deletes the data source(s) marked in the table.

Server Groups...

Opens the "Edit Server Groups" dialog box, where servers can be pooled into groups.

Properties...

If a monitoring file was selected as data source this command supplies the properties of the server the monitoring file is coming from.

This command is only available in the context menu of the "Available Data Sources" display area and the "Data Sources" tab.

Time Stamps...

If a monitoring file was selected as data source this command displays the time stamps of the monitoring file in the "Time Stamps" dialog box.

This command is only available in the context menu of the "Available Data Sources" display area and the "Data Sources" tab.

Agents

Opens the list of commands for editing the agent entries.

Edit...

Opens the "Agents" dialog box. In this dialog box you can enter new agents or change and delete existing entries.

Long-Term Files

Opens the list of commands for editing long-term files.

New...

Opens the "New Long-Term File" dialog box. In this dialog box you can create a new long-term file.

Modify...

Opens the "Modify Long-Term File" dialog box. In this dialog box you can modify the definition of a long-term file.

Show Contents...

Opens the "Show Contents Of Long-Term File" dialog box. In this dialog box the definition of a long-term file and the contained data are displayed.

Options

Opens the list of commands for changing certain settings for the manager.

Settings...

Opens the "Settings" dialog box. In this dialog box you can change the path names for the databases.

Edit Variables...

Opens the "Edit Variables" dialog box. In this dialog box you can define variables which can be used in various specifications for an analysis job.

Extras

Opens the list of commands for executing a number of utility functions for the manager.

Import Data...

With this command you can copy data records from a database of same type into the database for analyses or the database for agents.

You can for instance import the pre-defined analysis jobs for standard analyses from the supplied databases.

Reorganize Database...

With this command you can reorganize a database. The database is compressed and repaired if necessary.

Macro

Opens the list of commands for editing macros.

Start Recording

Starts the recording of a macro. All actions which are performed from now on will be recorded. If an analysis job is already defined when starting the recording, it is reset, because a macro must

cover a complete analysis sequence. **Stop Recording...**

The recording of the macro is terminated and the "Save Macro" dialog box is opened. In this dialog box you can save the macro in the database.

Execute...

Opens the "Execute Macro" dialog box. In this dialog box you can select a macro to be executed. Edit...

Opens the "Edit Macro" dialog box. In this dialog box you can edit a macro.

Delete...

Opens the "Delete Macro" dialog box. In this dialog box you can delete macros from the database.

<u> </u>Help

Opens the list of commands for Help.

ANALYZER Help

Opens the Online Help.

openSM2 on the Web

Opens a browser window with the openSM2 homepage in the internet.

Info...

Opens a dialog box with information on the manager.

Display areas

In the display areas the available data sources and the defined analysis jobs as well as the specifications for the current analysis are displayed.

Available Data Sources

The "Search" command in the "Data Sources" menu or the appropriate button in the tool bar causes the agents to search the existing data sources. The found data sources are displayed in a tree structure.

In the highest level the system types are displayed, if monitoring files were found for different system types.

In the next level the server groups are displayed if server groups are defined.

In the next level the servers are displayed the found monitoring files come from.

In the lowest level the found monitoring files are displayed.

Mark a server group, a server or a monitoring file to select it as data source for the current analysis.

In an analysis job only one kind of data sources can be selected, i.e. a server group, one or several servers or one or several monitoring files can be selected however not e.g. servers and monitoring files mixed.

Defined Analysis Jobs

In this display area the analysis jobs already defined and stored in the database for analyses are displayed in a tree structure.

In the highest level the analysis types are displayed and below the analysis jobs available for the type. Mark an analysis job to select it for the current analysis.

The tab set for the display of the current analysis

The specifications for the current analysis are displayed on the "Data Sources" and "Analysis Job" tabs.

"Data Sources" tab

The table contains the data sources for the current analysis.

Monitoring File

Name of the monitoring file or "*", if a server or a server group was specified as data source.

Server

Name of the server, whose monitoring data are to be analyzed

resp.

Name of the server group, whose monitoring data are to be analyzed, in the format G(< name of the server group>).

Тур

Type of the system the monitoring data come from - BS2000, UNIX, Linux, Windows or ESX.

Start

Start time stamp of the monitoring file

resp.

earliest time stamp of all monitoring files of the servers or the server group.

Stop

Stop time stamp of the monitoring file resp. latest time stamp of all monitoring files of the servers or the server group.

"Analysis Job" tab

The tab contains display areas with the specifications for the current analysis job. Only the display areas are shown, which are relevant for the selected type of analysis.

Analysis Period

Display area for the analysis period specifications.

Overall Period

Displays the overall period.

Time Windows

Displays the time windows for the analysis period.

Exception Periods

Displays the exception periods for the analysis period.

Values

Display area for the list of defined values.

Value Name Name of the value.

Text For Legend The text for legend specified for the value.

Output Options

Display area for the output options.

Type Of Time Axis

Displays the selected type of time axis.

Analysis Subintervals

Displays the size of an analysis subinterval or the number of all analysis subintervals on the time axis.

Analysis Title

Displays the title of the analysis.

Analyze Process Hit List File

Displays whether the process hit list file is to be analyzed.

Parameters

Display area for the parameters of the automatic analysis.

Main Application

Displays the main application for the automatic analysis.

Important Categories

Displays the important categories for the automatic analysis.

Long-Term File

Display area for the long-term file to be augmented.

File Name

File name of long-term file to be augmented.

Overwrite Values

Indication whether already available values are to be overwritten.

6.3 The Analysis Period dialog box

"Modify..." button in the "Analysis Period" display area

In this dialog box you can edit the analysis period for the analysis job shown in the "Analysis Period" display area of the "ANALYZER" dialog box.

When the dialog box is opened, the items in the box are preset with the specifications from the "Analysis Period" display area in the "ANALYZER" dialog box.

Overall Period tab options

| <u>.</u> | 🛮 Analysis Period - OperatingInstruction 🛛 🛛 🔀 | | | | | | | | | X | | | |
|----------|--|--------------|------------|----------|-------|---|-----|-----|------|----|---------|-----|--|
| 0 | verall Period | Time Windows | Exceptio | n Perio | s | | | | | | | | |
| | | | | | | | | | | | | | |
| | | From: | Day | 2006- | 05-03 | _ | | | Time | 10 |):15:00 | | |
| | eriod | | - <u>1</u> | | | | | | | | | | |
| | | To: | Day | 2006- | 05-03 | _ | | | Time | 16 | 6:25:00 | - | |
| | | | - | | | , | | , | | | | ļ | |
| | - | | lumo e u | | _ | | | | | | | | |
| | С <u>D</u> ау | Day | *TODA | Y. | | | | | | | | | |
| | ◯ <u>M</u> onth | Month | July | | - | | Yea | ar | 2006 | * | | | |
| | C Year | Year | 2006 | <u>~</u> | | | | | | | | | |
| | <u>-</u> oui | 1 O GI | | <u>~</u> | | | | | | | | | |
| | | | | | | _ | | | | | | | |
| | | | | | ОК | | | Can | cel | | Н | elp | |

Specify the overall period here.

Period

Choose this option if you want to specify the overall period with start date and time and end date and time.

If the analysis period is not yet defined and the data source is already selected the period is preset with the start and end time stamp of the monitoring file resp. long-term file specified as data source. In this case sliders for the modification of the period are available.

From: Day

Start date in the format YYYY-MM-DD or *START or *TODAY or *YESTERDAY or date variable. *START is the start date of the monitoring file resp. long-term file, *TODAY is the date of the current day, *YESTERDAY is the date of the previous day.

As start date a date variable without format specification can also be used.

From: Time

Start time in the format HH:MM:ss.

To: Day

End date in the format YYYY-MM-DD or *STOP or *TODAY or *YESTERDAY or date variable. *STOP is the end date of the monitoring file resp. long-term file, *TODAY is the date of the current day, *YESTERDAY is the date of the previous day.

As end date a date variable without format specification can also be used.

To: Time

End time in the format HH:MM:ss.

Day

Date in the format YYYY-MM-DD or *TODAY or *YESTERDAY or date variable.

*TODAY is the date of the current day, *YESTERDAY is the date of the previous day.

As date a date variable without format specification can also be used.

The overall period then extends from 00:00:00 hours to 23:59:59 hours on the specified day.

Month

With this option you specify the month and year.

The overall period then extends from 00:00:00 hours on the first day of the month to 23:59:59 hours on the last day of the month.

Year

With this option you specify the year.

The overall period then extends from 00:00:00 hours on the first day of the year to 23:59:59 hours on the last day of the year.

| 1 1 1 | Time Windows tab options | | | | | | | | | |
|-------------|--|------------------|---------------------|------|--|--|--|--|--|--|
| 🗷 Analy | Analysis Period - OperatingInstruction | | | | | | | | | |
| Overall | Period Time Windows E | xception Periods | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | _ | | | | | | |
| | ✓ <u>1</u> st Window | From: 08:00:00 | To: 17:00:00 | | | | | | | |
| | 🔲 2nd Windo w | From: | To: | - | | | | | | |
| | | | | | | | | | | |
| | ☐ <u>3</u> rd Window | From: | To: | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | ОК | Cancel | Help | | | | | | |

You can specify up to three time windows here.

1st, 2nd, 3rd Time Window

Time windows with start and end time.

From:

Start time in the format HH:MM:ss.

To:

End time in the format HH:MM:ss.

Exception Periods tab options

| 🗷 Analysis Period - Operatii | nginstr | uction | | | | | × | | |
|---|---------|--------|----------|---|--------|----------|------|--|--|
| Overall Period Time Windows Exception Periods | | | | | | | | | |
| 1st Period 2nd Period 3rd Period | | | | | | | | | |
| C <u>N</u> ot Defined | | | | | | | | | |
| C <u>O</u> ne-off | From | : Day | Saturday | • | Time | 00:00:00 | - | | |
| <u> </u> | | | | | | | | | |
| C D <u>a</u> ily | To: | Day | Sunday | • | Time | 23:59:59 | | | |
| C <u>C</u> alendar | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | ОК | (| Cancel | | Help | | |

If you want to specify exception periods, enter these periods here. Up to three periods can be excluded.

The option you select determines which dialog elements appear.

Not Defined

You do not want to specify an exception period.

One-off

Choose this option if you want to exclude a fixed period with start date and time and end date and time from the analysis.

From: Day

Start date in the format YYYY-MM-DD.

From: Time

Start time in the format HH:MM:ss.

To: Day

End date in the format YYYY-MM-DD.

To: Time

End time in the format HH:MM:ss.

Repeated

With this option you periodically exclude a period of the week from the analysis.

From: Day

Day of the week on which the exception period is to begin.

From: Time

Start time on the day of the week in the format HH:MM:ss.

To: Day

Day of the week on which the exception period is to end.

To: Time

End time on the day of the week in the format HH:MM:ss.

Daily

With this option you periodically exclude a period of the day from the analysis.

From: Time

Start time in the format HH:MM:ss.

To: Time

End time in the format HH:MM:ss.

Calendar

This option is only available for the analysis of SM2 monitoring files in BS2000/OSD.

With this option you exclude the days specified as free days in the given calendar file. This option can be selected for one exception period only.

Calendar File

Name of BS2000 calendar file.

If in an analysis run several monitoring files on different servers are to be analyzed, a file of this name must exist on each server.

οκ

The specifications are transferred to the "Analysis Period" display area in the "ANALYZER" dialog box.
6.4 The Automatic Analysis dialog box

"Show Result..." command in the "Analysis" menu of the "ANALYZER" dialog box

In this dialog box the result of an analysis of the type "Perform Automatic Analysis" is displayed. The result of the automatic analysis can be stored as automatic analysis file, Word document or text file and printed out in list format. Additionally an automatic analysis file, which contains the result of an earlier automatic analysis, can be opened.

| 🗷 Automatic Analysis | |
|--|---|
| Elle ? | |
| 🗃 🖬 🎒 🔃 | |
| D0162E04 | MULTIPROCESSOR LEVEL UNBALANCED |
| | |
| BS2000 CPU GOVENTIAL SYSTEM CPU GOVENTIAL SYSTEM CPU OVERLOAD HYPERVISOR OVERHEAD HIGH DILATION OF IO SERVICE TIME CPU QUOTA UNBALANCED MULTIPROCESSOR LEVEL UNBALAN | Low usage of CPU resources for guest system 'D016ZE04'. Needed CPU time is also available with a lower number of processors. Decrease multiprocessor level to reduce hypervisor overhead. |
| | |
| | |

Structure of the result

The Automatic Analysis dialog box consists of two display areas:

The structure tree in the left half shows the areas CPU, IO, PAGING and VM2000, which are subdivided into message areas. The message areas, to which messages are present, are marked red. Above the structure tree the hostname is displayed.

The text area in the right half displays information and messages. If "BS2000" is clicked in the structure tree, general information and possible warnings are output in the text area. If a red marked message area is clicked, then the appropriate messages are output.



File

Opens the list of commands for opening, saving and printing the automatic analysis.

൙ Open...

Opens a dialog box, in which you can specify the automatic analysis file to be opened.

日 Save...

Opens the "Save Automatic Analysis" dialog box, in which you can specify under which name and in which format the automatic analysis is to be saved.

🖨 Print...

Opens a dialog box for printing the automatic analysis.

6.5 The Charts dialog box

"Show Result..." command in the "Analyses" menu of the "ANALYZER" dialog box resp.

"Time Series..." or "Correlation..." command in the "Chart" menu of the "Result Tables" dialog box

The values of the area selected in the result table are presented graphically in the dialog box. Several charts can be displayed at the same time. The charts can be modified, printed, and saved to a file or in the clipboard.

Layout of a chart

You will find a detailed description of the layout of a chart in the section entitled "Chart". This section also describes the various diagram types and their style options.



Dialog box options of the menu bar resp. tool bar

File

Opens the list of commands for creating new charts and saving and printing the active chart.

New

Opens the submenu for creating an additional chart.

🔀 Time Series...

Opens the "Create Chart" dialog box.

In this dialog box you can select the analysis subintervals and values to be displayed as time series chart.

Correlation...

Opens the "Create Chart" dialog box.

In this dialog box you can select the analysis subintervals and values to be displayed as correlation chart.

日 Save...

Opens the "Save Chart" dialog box.

In this dialog box you can save the chart to a file or in the clipboard.

🖨 Print...

Opens a dialog box for printing the chart.

Close

Closed the "Charts" dialog box.

Edit

Opens the list of commands for editing the active chart. The menu is also opened if you click the righthand mouse button within the chart.

<u>ຟ</u> Chart...

Opens the "Edit Chart" dialog box. In this dialog box you can edit the colors and shading for the chart.

📝 Labels...

Opens the "Edit Labels" dialog box. In this dialog box you can edit the labels for the chart.

Display

Opens the list of commands for modifying the diagram layout.

Diagram Type

Opens the submenu for selecting the diagram type. The diagram types offered for the selection depend on the type of the diagram (time series or correlation).

Diagram Style

Opens the submenu for selecting the diagram style. The diagram styles offered for the selection depend on the option selected for "Diagram Type".

Draw Style

Opens the submenu for selecting the draw style.

Dattern

The values are represented with different patterns resp. line styles.

5 Color

The values are represented with different colors.

Grid Lines

Opens the submenu for drawing grid lines.

栏 Horizontal

Horizontal grid lines are drawn in the diagram.

M Vertical

Vertical grid lines are drawn in the diagram.

Statistical lines

Opens the submenu for drawing statistical lines.

🕂 Mean

The mean value over the analysis subintervals is displayed for each value.

📈 Min/Max

The minimum and maximum are displayed for each value.

🚈 StdDev

The standard deviation is displayed for each value.

🚧 Best Fit

An approximation curve with given polynomial order is displayed for each value.

6.6 The Configuration dialog box

"Show Result..." command in the "Analysis" menu of the "ANALYZER" dialog box

In this dialog box the result of an analysis job of the type "Configuration" is displayed.

| Configuration | | | | | | | | - 🗆 🛛 |
|------------------------|-----------|-----|------------|--------------|---------------|------------|-----------|--------|
| Eile Display Extras ? | | | | | | | | |
| 😹 🖬 🚳 🐴 🖆 🐘 🏢 🕘 | | | | | | | | |
| D0107E04040 | | | BC2000./CI | ennel 0000 | | 2000 | | |
| D0162E04 (9M) | a d | | B32000/Cr | iannei, oozo | Controller. I | 2000 | | |
| 💖 BS2000 🔨 | MN | VSN | Path | Device | Device | Code | Block For | Attr 🔺 |
| 😑 🛲 Channel: 0000 | E0AA | | 0020aa | DISK | D3435 | a5 | | DE |
| E Controller: C0 | E0AB | | 0020ab | DISK | D3435 | a5 | | DE |
| 🥔 🚽 🖉 🖌 🖉 | E0AC | | 0020ac | DISK | D3435 | a5 | | DE |
| 📄 — — 📼 Controller: C1 | E0AD | | 0020ad | DISK | D3435 | a5 | | DE |
| # FAM50: C1 | E0AE | | 0020ae | DISK | D3435 | a5 | | DE |
| E Controller: 6Y | E0AF | | 0020af | DISK | D3435 | a5 | | DE. |
| CONSOLE: N3 | E0A0 | | 0020a0 | DISK | D3435 | a5 | | DE |
| CONSOLE: N4 | E0A1 | | 0020a1 | DISK | D3435 | a5 | | DE |
| CONSOLE: N8 | E0A2 | | 0020a2 | DISK | D3435 | a5 | | DE |
| Channel: 0002 | E0A3 | | 0020a3 | DISK | D3435 | a5 | | DE |
| E Controller 3G | E0A4 | | 0020a4 | DISK | D3435 | a5 | | DE |
| | E0A5 | | 0020a5 | DISK | D3435 | a5 | | DE. |
| TD:YP | E0A6 | | 0020a6 | DISK | D3435 | a5 | | DE. |
| | E0A7 | | 0020a7 | DISK | D3435 | a5 | | DE. |
| Channel: 0008 | E0A8 | | 0020a8 | DISK | D3435 | a5 | | DE. |
| Controller 70 | E0A9 | | 0020a9 | DISK | D3435 | a5 | | DE |
| EController. 70 | EOBA | | 0020ba | DISK | D3435 | a5 | | DE |
| | EOBB | | 0020bb | DISK | D3435 | a5 | | DE |
| MBK:M3 | EOBC | | 0020bc | DISK | D3435 | a5 | | DE |
| MBK: M4 | EUBD | | 0020bd | DISK | D3435 | ab | | DE |
| B MBK: M5 | EUBE | | 002066 | DISK | D3435 | a5 | | DE |
| 🕀 🖂 Channel: 000b | EUBF | | 0020bt | DISK | D3435 | ab | | DE |
| 🕒 🕀 Channel: 000e | EUBU EUBU | | 002060 | DISK | D3435 | a5 | | DE |
| 🗎 🗄 🛲 Channel: 000f | EUBI | | 1002001 | DISK | D3435 | a5 | | DE |
| 🕒 🕀 🥮 Channel: 0013 | EUB2 | | 002062 | DISK | D3435 | a5 - 5 | | DE |
| 庄 🛁 Channel: 0019 | | | 002003 | DISK | D3435 | 85 - E | | DE |
| 😑 🛁 Channel: 0020 | EUD4 | | 002004 | DISK | D3435 | a5 - F | | DE |
| 🚊 — 🥮 Controller: E000 | | | 002005 | DISK | D3435 | a5 - F | | DE |
| DISK: E0AA | | | 002000 | DISK | D3435 | 85 05 | | DE |
| 📕 DISK: E0AB | E0B8 | | 002007 | DISK | D3435 | ao 95 | | DE |
| DISK: EDAC | E E D B G | | 002000 | DISK | D3435 | a:) =5 | | DE |
| DISK: E0AD | FOCA | | 002003 | DISK | D3435 | a.) a.5 | | DEV |
| DISK: E0AE | LUCA | | ouzoca | DIGK | D0400 | au | | |
| | | | | | | | | |

Structure of the configuration

The configuration is displayed in a structure tree. On all items of the configuration detailed information can be output.

In the section "Structure of the configuration" you find a detailed description of the structure of the configuration.

Save and open configuration

You can save the configuration in a file and open it at any time for further use.

Print configuration

You can print the configuration as a graphic.

Searching the configuration

You can search the configuration for certain devices. As search criterion all characteristics of the device, e.g. MN, VSN, type of device, etc. can be used.

System properties

You can display information about the system, e.g. machine type, system name, version, main memory, virtual address space, number of processors, etc..

Dialog box options of the menu bar resp. tool bar

File

Opens the list of commands for opening, saving and printing the configuration.

൙ Open...

Opens a dialog box, in which you can specify the configuration file to be opened.

日 Save...

Opens the "Save Configuration" dialog box.

In this dialog box you can save the configuration in a file or in the clipboard.

🖨 Print...

Opens a dialog box for printing the configuration.

Display

Opens the list of commands for modifying the representation of the configuration.

Large Icons

The items of the configuration are represented with large symbols.

Small Icons

The items of the configuration are represented with small symbols.

List

The items of the configuration are represented in list format.

Details

Displays information about the items of the configuration.

Extras

Open the list of commands for special functions.

Find Devices...

Opens the "Find Devices" dialog box for searching the configuration for devices.

System Properties...

Opens a dialog box, in which the system properties are displayed.

6.7 The Create Chart dialog box

"Time Series..." resp. "Correlation" command in the "Chart" menu of the "Result Tables" dialog box resp. in the "New" submenu of the "File" menu of the "Charts" dialog box

In this dialog box you can select the values and analysis subintervals to be displayed in a chart.

| 🗹 Create Chart | |
|---|--|
| Intervals | |
| From: | 2007-05-16 07:00:00 |
| То: | 2007-05-16 16:58:00 |
| | |
| Values | |
| ⊖ Select <u>A</u> ll | |
| Select Explicitly | |
| Available Values | Values In The Chart |
| MCP0283C: CPU-Total/InterruptTime[%] MCP0283C: CPU-Total/IdleTime[%] MCP0553C: CPU-Total/IdleTime[%] MCP0553C: CPU-Total/PrivilegedTime[%] MCP0553C: CPU-Total/IdleTime[%] MCP0553C: CPU-Total/IdleTime[%] MCP0471C: CPU-Total/IdleTime[%] MCP0471C: CPU-Total/InterruptTime[%] MCP0471C: CPU-Total/InterruptTime[%] MCP0471C: CPU-Total/IdleTime[%] | MCP0332C: CPU-Total/UserTime[%] MCP0283C: CPU-Total/UserTime[%] MCP0553C: CPU-Total/UserTime[%] MCP0471C: CPU-Total/UserTime[%] |
| Select Value Only If | |
| Mean Value 💌 Greater Than | 20 And Less Than |
| Sort Values Descending | According To Mean Value |
| Maximum Number Of Values In A Chart: 5 📩 | |
| | OK Cancel Help |

Dialog box options

Intervals

Here you select the intervals to be displayed.

From

Here you select the first interval of the area to be displayed. Move the slider until the time stamp of the desired interval is displayed on the right hand side.

То

Here you select the last interval of the area to be displayed. Move the slider until the time stamp of the desired interval is displayed on the right hand side.

Values

Here you select the values to be displayed.

Select All

Choose this option if all values are to be displayed in the chart.

Select Explicitly

Choose this option if certain values are to be displayed in the chart.

Available Values

The list contains all values available in the result table. Mark a value in the list to add it to the chart by clicking on the ">>" command button.

Values In The Chart

The list contains all values to be displayed. Mark a values in the list to remove it from the list by clicking on the "<<" command button.

Options

Here you specify additional options for the values.

Select Value Only If

Mark this option if only values corresponding to a certain condition are to be displayed in the chart. You can specify a lower and/or an upper limit for the mean, the minimum or the maximum of the value in the analysis period. A value is displayed in the chart only if its mean, minimum or maximum is lying within these limits. If one limit is not specified only the other limit is regarded.

Sort Values

Mark this option if the values are to be displayed in the chart in a certain order.

The values can be sorted either ascending or descending according to the mean value, the minimum or the maximum.

Maximum Number Of Values In A Chart

Here you specify how many values are to be displayed maximally in a chart.

If the number of selected values is larger than the maximum's number several charts are produced.

OK

The selected values and analysis subintervals are displayed in a chart or several charts.

6.8 The Delete Analysis Job dialog box

"Delete Job ... " command in the "Analysis" menu

Deletes analysis jobs stored in the database for analyses.

| 🗷 Delete Analysis Job | \sim |
|-------------------------------|--------|
| Type Of Analysis: | |
| Create Charts | ОК |
| Select Applysic Job: | |
| <u>o</u> elect Allalysis Job. | Close |
| MACRO: Sar-b-1 | |
| MACRO: Sar-b-2 | |
| MACRO: Sar-c | Help |
| MACRO: Sar-d-1 | |
| MACRO: Sar-d - 2 | |
| MACRO: Sar-d-3 | |
| MACRO: Sar-d-4 | |
| MACRO: Sar-d - 5 | |
| MACRO: Sar-d - 6 | |
| MACRO: Sar-g | |
| | |



Dialog box options

Type Of Analysis:

Choose the type of analysis of the analysis jobs to be deleted. All analysis jobs for this type of analysis are then displayed in the list below.

Select Analysis Job:

From the list, choose the name of the analysis job you want to delete.

OK

The analysis job is deleted.

6.9 The Delete Intervals dialog box

"Delete Intervals..." command button in the "Modify Long-Term files" dialog box

In this dialog box you can delete measurement values for specified intervals from the long-term file.

| 🗷 Delete Intervals | . 🛛 🔀 |
|--|--------|
| 2005-07-19 00:00:00 2005-07-19 01:00:00 | Delete |
| 2005-07-19 02:00:00 2005-07-19 03:00:00 | Close |
| 2005-07-19 04:00:00 2005-07-19 05:00:00 | Help |
| 2005-07-19 06:00:00 2005-07-19 07:00:00 | · |



Dialog box options

The table contains the time stamps of all intervals for which measurement values are stored in the long-term file in the format YYYY-MM-DD HH:MM:ss.

Mark the intervals to be deleted. You can mark a range in the table by clicking first the first interval and then with pressed shift key the last interval.

Delete

The measurement values of the intervals marked in the table are deleted from the long-term file.

6.10 The Delete Macro dialog box

"Delete..." command in the "Macro" submenu of the "Extras" menu

Deletes macros stored in the database for analyses.

| 🗷 Delete Macro | |
|---|-------|
| <u>S</u> elect Macro: | |
| NET_SOL NET_SOL_DIAGRAMME SAR_CPU_DIAGRAMME SAR_SOL STATVFS_SOL | |
| TEST UNIXStandardAnalysis | ОК |
| WORKLOADCLASS_SOL | Close |
| | Help |



Dialog box options

Select Macro:

From the list, choose the name of the macro you want to delete.

OK

The macro is deleted.

6.11 The Edit Agent dialog box

"New..." resp. "Modify..." button in the "Agents" dialog box

In this dialog box you enter the specifications necessary for the communication with the agent.

| 🗷 Edit Agent | t | | |
|--------------------|----------------------|----------|------|
| <u>C</u> omputer N | ame: | mcp0332c | |
| IP Address: | | *BY-NAME | |
| Port Numbe | r: | 8144 | |
| Search Path | For Monitoring Files | : | |
| D. topensmiz | _v7.0\AnalyzenDala | | |
| | ОК | Cancel | Help |



Dialog box options

Computer Name

Here you specify the (up to 255 characters long) name of the computer the agent is running on.

This name is used as name of the agent.

IP Address

Specify the IP address under which the computer can be reached in the network or *BY-NAME. Ask your network administrator for the IP address.

If you specify *BY-NAME the IP address of the computer is determined by the manager. In this case the computer must be known on the PC, i.e. it must be addressable via a DNS server or entered in the HOSTS file on the PC. With the ping command you can determine whether the computer is accessible from the PC.

Port Number

Enter the port number of the port via which the manager is to communicate with the agent.

The specified port number must match the port number specified for the agent.

For the agent the port number is registered as follows:

- BS2000: in the START-ANALYZER command
- UNIX, Linux: in the shell procedure "start.analyzeragt"
- Windows: in the configuration file of the agent

Search Path For Monitoring Files

Here you can specify a path for the search for data sources.

The search path is specified as follows:

BS2000: partially qualified file name, e.g. \$MONITOR.SM2.

UNIX, Linux: directory, e.g. /home/openSM2/MonitoringFiles

Windows: folder, e.g. D:\Data\openSM2\MonitoringFiles

When searching in the "Data Sources" dialog box the agent is triggered to supply a list of all openSM2 monitoring files corresponding to the partially gualified file name resp. contained in the specified directory (including the sub-directories) resp. folder (including the sub-folders).

OK

Transfers the entered specifications to the "Agents" dialog box.

6.12 The Edit Chart dialog box

"Chart..."command in the "Edit..." menu of the "Chart" dialog box

You can use this dialog box to change the settings of the colors and shading and the options for the axes and legend for the active chart.



Color and Patterns tab options

Color

Here you choose the colors to be used for the values in the chart if the "Color" display mode is selected.

Click on a color with the right mouse button to modify it.

Fill Pattern

Here you choose the fill patterns to be used for the values in the chart if the "Pattern" display mode is selected.

Click on a fill pattern with the right mouse button to modify it.

Line Type

Here you choose the line types to be used for the values in the chart if the " Pattern " display mode is selected.

Click on a line type with the right mouse button to modify it.

Symbol

Here you choose the symbols to be used for the values in the chart.

Click on a symbol with the right mouse button to modify it.

Background

Here you choose the background color to be used in the chart.

Click on the color with the right mouse button to modify it.

Palette

Here you choose the palette of the colors to be used in the chart.

Missing Data Mode

Here you specify the mode for the representation of missing data. This setting applies to line charts only.

Thick Lines

Mark this option, if thick lines should be used for lines in the chart.

Axes and Legend tab options

| 🗷 Edit Chart - TotalTime[%] | X |
|---|-----------------------|
| Colors And Patterns Axes And Legend | |
| | |
| X AXIS | |
| - Time Series | |
| Distance <u>O</u> f Ticks: | *AUTO |
| | |
| <u>F</u> ormat For Labels Of Time Axis: | yyyy-mm-dd nn:nn |
| | |
| Correlation | |
| Minimum Value: *AUTO | |
| | |
| Maximum Value: | |
| | |
| -Y Avia | |
| | |
| Mi <u>n</u> imum Value: | |
| 100 | Number Of Ticks: 5 |
| Maximum Value: | |
| | |
| Legend | |
| Position Of Legend: | Size Of Legend: |
| | |
| | |
| Save As Default | Accept For All Charts |
| | OK Cancel Help |
| | |

X Axis

Here you specify the settings for the horizontal axis.

With the setting *AUTO, the x axis is adapted automatically to the measurement values.

Time Series

Here you specify the settings for the horizontal axis of time series charts.

Distance Of Ticks

Specify the distance of ticks on the x axis. If you specify e.g. 2 a mark is drawn for each second interval.

Format For Labels Of Time Axis

Here you either select a pre-defined format of time identification or specify a user-defined format.

Correlation

Here you specify the settings for the horizontal axis of correlation charts.

Minimum Value

Specify the minimum value on the x axis.

Maximum Value

Specify the maximum value on the x axis, if not *AUTO is specified for "Minimum Value".

Number Of Ticks

Specify the number of marks on the x axis, if not *AUTO is specified for "Minimum Value" and "Maximum Value".

Y Axis

Here you specify the settings for the vertical axis.

With the setting *AUTO, the y axis is adapted automatically to the measurement values.

Minimum Value

Specify the minimum value on the y axis.

Maximum Value

Specify the maximum value on the y axis, if not *AUTO is specified for "Minimum Value".

Number Of Ticks

Specify the number of marks on the y axis, if not *AUTO is specified for "Minimum Value" and "Maximum Value".

Legend

Here you specify the settings for the legend.

Position Of Legend

Here you specify the position of the legend in the chart.

Size Of Legend

This setting specifies a percentage of the maximum possible gap between lines in the space allotted for the legend.

Save As Default

If this option is selected, the settings are stored as standard settings. If you do not store the settings, they are only effective, as long as the manager is loaded. If the manager is terminated and again started, then again the standard settings are used.

Accept For All Charts

If this option is marked the settings are accepted for all charts displayed in the "Charts" dialog box, otherwise the settings are only accepted for the active chart.

ΟΚ

The settings are accepted.

6.13 The Edit Labels dialog box

"Labels..." command in the "Edit..." menu of the "Chart" dialog box

In this dialog box you can edit the labels of the active chart and the layout of the printout.

The individual dialog elements show the previous chart values when the dialog box is opened.

| 🕙 Edit Labels - TotalTime[%] | | | 2 |
|-------------------------------------|------------------|-----------------|---|
| Labels Of Chart | | | |
| Title Of Chart: TotalTime | [%] | | |
| | | | |
| Additional Label For <u>X</u> Axis: | *AUTO | | |
| Additional Label For <u>Y</u> Axis: | | | |
| 🔲 Weekday In Label Of Time Axis | ; | | |
| Text For Legend | | | |
| Value 1 Value 2 Value 3 | | | |
| | | | 1 |
| | | | |
| #/8ED\/ED) | | | |
| | | | |
| | | | |
| 🔲 <u>S</u> erver Name In Legend | | | |
| | | | |
| Copy To Result Table | | | |
| - Page Lavout | | | |
| Header | | | |
| Left: | <u>C</u> enter: | <u>R</u> ight: | |
| | | | |
| | 1 | | |
| Footer | | | |
| L <u>e</u> ft: | Ce <u>n</u> ter: | R <u>ig</u> ht: | |
| ANALYZER | Page # | \$ | |
| | , | | |
| Page Number: | Save As Default | | |
| | | | |

Dialog box options

Labels Of Chart

With these specifications you can arrange the labelling of the chart.

Title Of Chart

The text entered here is inserted above the diagram.

The title of chart can contain the date variable and user-defined variables.

Additional Label For X Axis

The text entered here is inserted below the standard label of the horizontal axis. With the specification *AUTO, a meaningful additional label is generated automatically.

Additional Label For Y Axis

The text entered here is inserted to the left of the vertical axis.

Weekday In Label Of Time Axis

If this option is selected, the weekday is placed in front of the additional label to the time axis label in the chart, if the additional label consists of a date.

Text for Legend

The text for the legend can be changed on a tab for every value of the chart.

Server Name in Legend

If this option is selected, the sever name is placed in front of the text for legend in the chart.

Copy To Result Table

The specifications for the labelling of the chart are transferred to the corresponding result table.

Page Layout

You can use these settings to arrange the layout of the printout.

For all settings for the page layout, you can use a date variable and user-defined variables.

In addition some special characters are replaced as follows:

- "#" current page number
- "\$" current date
- "@" overall period
- "?" time windows
- "!" exception periods

Header

On the printout, the header appears above the frame surrounding the chart.

Left

The text entered here is inserted on the left-hand side of the header.

Center

The text entered here is inserted in the center of the header.

Right

The text entered here is inserted on the right-hand side of the header.

Footer

On the printout, the footer appears below the frame surrounding the chart.

Left

The text entered here is inserted on the left-hand side of the footer.

Center

The text entered here is inserted in the center of the footer.

Right

The text entered here is inserted on the right-hand side of the footer.

Page Number

The number entered here replaces the character "#" in the entries for "Header" and "Footer".

Save As Default

If this option is marked the settings for the layout of the printout are saved as default settings. If you don't save the settings, they only remain valid for as long as the manager is loaded. If the manager is ended and restarted, the default settings will be used again.

οκ

The settings are accepted for the active chart.

6.14 The Edit Macro dialog box

"Edit..." command in the "Macro" submenu of the "Extras" menu

In this dialog box you can edit macros saved in the database for analyses and create new macros.

| Edit Macro - Windows | StandardAnalysis 📃 🗖 |
|----------------------------------|--|
| Macro Instructions | |
| OpenAnalysisJob StartAnalysis | AnalysisJobName:="WindowsStandard: ProcessorTotalTime", AnalysisType |
| CreateChart | ResultTableIndex:=0, Type:=TimeSeries, Selection:=Table, Sort:=No, S |
| SaveChart | ChartIndex:=0, Option:=WordDocument, Format:=Bitmap, FileName:="Stan |
| OpenAnalysisJob | AnalysisJobName:="WindowsStandard: ProcessorTime", AnalysisType:=Cre |
| StartAnalysis | |
| CreateChart | ResultTableIndex:=1, Type:=TimeSeries, Selection:=Table, Sort:=No, S |
| SaveChart | ChartIndex:=1, Option:=WordDocument, Format:=Bitmap, FileName:="Stan |
| OpenAnalysisJob | AnalysisJobName:="WindowsStandard: Memory", AnalysisType:=CreateChar |
| StartAnalysis | |
| CreateChart | ResultTableIndex:=2, Type:=TimeSeries, Selection:=Table, Sort:=No, S |
| SaveChart | ChartIndex:=2, Option:=WordDocument, Format:=Bitmap, FileName:="Stan |
| OpenAnalysisJob | AnalysisJobName:="WindowsStandard: Paging", AnalysisType:=CreateChar |
| StartAnalysis | |
| CreateChart | ResultTableIndex:=3, Type:=TimeSeries, Selection:=Table, Sort:=No, S |
| SaveChart | ChartIndex:=3, Option:=WordDocument, Format:=Bitmap, FileName:="Stan |
| OpenAnalysisJob | AnalysisJobName:="WindowsStandard: PagingFile", AnalysisType:=Create |
| StartAnalysis | |
| CreateChart | ResultTableIndex:=4, Type:=TimeSeries, Selection:=Table, Sort:=No, S |
| SaveChart | ChartIndex:=4, Option:=WordDocument, Format:=Bitmap, FileName:="Stan |
| OpenAnalysisJob | AnalysisJobName:="WindowsStandard: DiskTime", AnalysisType:=CreateCh |
| StartAnalysis | |
| CreateChart | ResultTableIndex:=5, Type:=TimeSeries, Selection:=Table, Sort:=No, S |
| SaveChart | ChartIndex:=5, Option:=WordDocument, Format:=Bitmap, FileName:="Stan |
| OpenAnalysisJob | AnalysisJobName:="WindowsStandard: DiskReadTime", AnalysisType:=Crea |
| StartAnalysis | |
| <u>E</u> dit | Delete Add Above Add Below |
| | Ogen <u>S</u> ave Close Help |

Dialog box options

Macro Instructions

List of all instructions of the macro.

For editing an instruction mark the corresponding entry in the list.

Edit...

Opens the "Edit macro instruction" dialog box for editing the marked instruction.

Delete

Deletes the marked instruction.

Add Above...

Opens the "Edit macro instruction" dialog box for creating a new instruction.

The new instruction is inserted into the list of instructions above the marked instruction.

Add Below...

Opens the "Edit macro instruction" dialog box for creating a new instruction.

The new instruction is inserted into the list of instructions below the marked instruction.

Open...

Opens the Open Macro dialog box to open a macro.

Save...

Opens the Save Macro dialog box to save the macro.

Close

The dialog box is closed.

6.15 The Edit Server Groups dialog box

"Server Groups..." command in the "Data Sources" menu

In this dialog box you can specify which servers are to be pooled in a server group.

| 🗷 Edit Server Group | 5 | | |
|---|---------|-------------------------------------|--|
| Server <u>T</u> ype: | WINDOWS | • | |
| Servers D01S9504 D01S9514 D01S9542 DUCKSOUP MCP0553C | | <u>A</u> dd >> << <u>R</u> emove | Server Group Name Of Server Group SO 13 Servers Of Server Group MCP0283C MCP0332C MCP0471C |
| | | ОК | Cancel Help |



Dialog box options

Server Type

Here you select the server type - BS2000, UNIX, Linux, Windows or ESX.

Servers

In this area the available servers are displayed.

Servers

The list contains all servers of the selected type not belonging to any server group. Mark one or more servers in the list, in order to add them to the selected server group with the "add" button.

Server Group

In this area the specifications of the selected server group are displayed.

Name Of Server Group

Here either you select an already defined server group or you specify a freely selectable name for a new server group to be defined.

Servers Of Server Group

The list contains all servers of the selected server group. Mark one or more servers in the list, in order to remove them from the selected server group with the "remove" button. If the server group contains no more servers it will be deleted.

OK

The defined server groups are saved.

6.16 The Edit Variables dialog box

"Edit Variables..." command in the "Options" menu

In this dialog box you define variables which can be used in analysis jobs for the specification of the title, the server name and the monitoring file as well as the file names for storing the result table and the chart.

You can enter new variables or change and delete entries.

Note: If a value is assigned to a variable during the execution of a macro by the "-v" option, then this modification is effective also after termination of the macro.

| Edit Variables | | |
|---|----------------------------|-------------|
| Variable Definitions <u>N</u> ame Of Variable: | <u>V</u> alue Of Variable: | |
| &STDHOST | = PGTD2290 | Delete |
| &UNIXHOST | = PGTD2290 | Delete |
| &BS2HOST | = D016ZE04 | Delete |
| &BS2FILE | = CURRENT | Delete |
| &UNIXFILE | = mwd.PGTD2290.05-02-03 | Delete |
| &LINUXHOST | = sky | Delete |
| &LINUXFILE | = mwd.sky.05-02-01 | Delete |
| | = | Delete |
| | = | Delete |
| | = | Delete |
| | | < > |
| | ОК | Cancel Help |



Variable Definition

Here the list of all variables, which have been defined, is displayed.

You can enter the specifications for a new variable and modify or delete defined variables.

Name Of Variable

Here you indicate a freely selectable, max. 20 characters long name, beginning with the character "&". Examples: &DEFHOST, &DEFAULTFILE

Value Of Variable

Enter the value which you want to assign to the variable.

The value of a variable can contain a date variable.

Delete

Deletes the entry.

>

Turn forward in the list of variables.

<

Turn backward in the list of variables.

οκ

The entered variables are saved.

6.17 The Execute Macro dialog box

"Execute..." command in the "Macro" submenu of the "Extras" menu

Opens and executes a macro saved in the database for analyses.

| 🗷 Execute Macro | |
|---|---------|
| <u>S</u> elect Macro: | |
| LinuxStandardAnalysis UNIXStandardAnalysis | Options |
| WindowsStandardAnalysis | |
| | ОК |
| | Cancel |
| | Help |



Dialog box options

Select Macro:

From the list, choose the name of the macro you want to execute.

Options...

Opens the "Macro Options" dialog box, where you can specify the arguments of the options for the macro execution.

OK

The macro is executed.

The Find Devices dialog box 6.18

"Find Devices..." command in the "Extras" menu of the "Configuration" dialog box

In this dialog box the configuration can be searched for certain devices.

| 🗷 Find Dev | /ices | | | | | | | | |
|-----------------|----------------------|-----------|--------|--------|------|---------|-----------|---------------|---|
| -Search F | or | | | | | | [<i></i> | | |
| <u>F</u> eature | | Device G | roup | | • | · | L | <u>S</u> tart | |
| With | | МВК | | | • | · | | | |
| Show | w Only <u>A</u> ttac | hed Devic | ces | | | | | Close | 1 |
| ✓ Show | ₩ All <u>P</u> aths | | | | | | | Help | |
| MN | VSN | Path | Device | Device | Code | Block I | For | Attributes | ~ |
| A0 | | 002400 | MBK | 3590E | c4 | | | DET | |
| A1 | | 002401 | MBK | 3590E | с4 | | | DET | = |
| A2 | | 002402 | MBK | 3590E | c4 | | | DET | |
| A3 | | 002403 | MBK | 3590E | c4 | | | DET | |
| A4 | | 002404 | MBK | 3590E | c4 | | | DET | |
| A5 | | 002405 | MBK | 3590E | с4 | | | DET | |
| A6 | | 002406 | MBK | 3590E | с4 | | | DET | |
| A7 | | 002407 | MBK | 3590E | с4 | | | DET | |
| A8 | | 002408 | MBK | 3590E | c4 | | | DET | |
| A9 | | 002409 | MBK | 3590E | с4 | | | DET | |
| AA | | 00240a | MBK | 3590E | с4 | | | DET | |
| AB | | 00240b | MBK | 3590E | с4 | | | DET | |
| AC | | 00240c | MBK | 3590E | c4 | | | DET | |
| AD | | 00240d | MBK | 3590E | с4 | | | | |
| AE | | 00240e | MBK | 3590E | с4 | | | | |
| AF | | 00240f | MBK | 3590E | с4 | | | | |
| AG | | 002410 | MRK | 3590F | c4 | | | DFT | × |
| 126 device(s |) found | | | | | | | | |



Dialog box options

Search For

Here you specify the search criterion.

Feature

Here you select the feature, which is to be searched.

With

Here you specify the term, which is to be found.

As last character an asterix can be input in the wildcard definition.

Show Only Attached Devices

If this option is selected, only devices are displayed, which are available to the system at present.

Show All Paths

If this option is selected, devices, which are attached over several paths, appear several times in the search result.

Start

Starts the search with the specified criteria.

The search result is entered into the output area.

6.19 The Intervals dialog box

Button "Intervals... " in the "New Value / Modify Value" dialog box

In this dialog box the time stamps of the intervals contained in the specified long-term file are displayed.

| 🗷 Intervals | | X |
|------------------------------|---------------------------------|----------|
| Name Of Long-Term File: | | |
| D:\Projekte\Analyzer V5.0\Da | ata\D016ZE04.ltd | |
| Intervals | | |
| 2005-07-19 00:00:00 | | ~ |
| 2005-07-19 01:00:00 | | |
| 2005-07-19 02:00:00 | | = |
| 2005-07-19 03:00:00 | | |
| 2005-07-19 04:00:00 | | |
| 2005-07-19 05:00:00 | | |
| 2005-07-19 06:00:00 | | ~ |
| | | |
| | Copy To <u>A</u> nalysis Period | |
| | Close He | lp |

Dialog box options

Name Of Long-Term File

Here the name of the long-term file specified in the "New Value / Modify Value" dialog box is displayed.

Intervals

Here the time stamps of the intervals are displayed in the format yyyy-mm-dd hh:mm:ss.

Copy To Analysis Period

The first and the last time stamp of the periods marked in the area "Intervals" is taken as analysis period.

6.20 The Long-Term File dialog box

"Modify..." button in the "Long-Term File" display area

You can use this dialog box to edit the long-term file for the analysis job displayed in the "Long-Term File" area of the "ANALYZER" dialog box.

When the dialog box is opened, the items in the box are preset with the values from the "Long-Term File" display area of the "ANALYZER" dialog box.

| 🖾 Long-Term File | |
|---|--------|
| Name Of Long-Term File: | |
| D:\Projekte\Analyzer V5.0\Data\D016ZE04.ltd | Search |
| Cver w rite Values | |
| OK Cancel | Help |



Dialog box options

Name Of Long-Term File

Here you specify the name of the long-term file.

Search...

Opens a dialog box in which you can search the long-term file.

Overwrite Values

Here you indicate whether the values from intervals already available in the long-term file are to be overwritten with the new values.

6.21 The Macro Options dialog box

"Options..." command button in the "Execute Macro" dialog box

In this dialog box you can specify the arguments of the options for the execution of the macro.

| 🜌 Macro Options | | \times |
|----------------------------|--|----------|
| Logging File: | -s D:\Temp\WindowsStandardAnalysis.log | |
| <u>A</u> nalysis Title: | -t | |
| <u>D</u> ata Source: | -d mcp0332c:D:\openSM2_V7.0\mwd.MCP0332C.06-05-03.101046 | |
| Analysis <u>P</u> eriod: | -p 🔽 2006-05-03 💌 10:00:00 📜 - 🔽 2006-05-03 💌 16:00:00 🗧 | |
| <u>V</u> ariables: | -v | |
| <u>R</u> esult Table File: | -r D:\openSM2_V7.0\ANALYZER\Data\mcp0332c | |
| <u>E</u> xcel Macro: | -x | |
| <u>G</u> raphics File: | -g D:\openSM2_V7.0\ANALYZER\Data\mcp0332c | |
| Long-term File: | -1 | |
| Create <u>B</u> atch File | | |
| | OK Cancel Help | |



Dialog box options

Log file

Here you can specify a log file if the macro execution is to run in the background: in this case messages are not output at the screen, but logged in the indicated file. If the file is specified without path it is allocated in the application data directory.

Title Of Analysis

Here you can specify the title of the analysis, which appears in the chart as heading. The title can contain a date variable and user-defined variables.

If this option is not specified, a meaningful title is generated automatically.

Data Source

Here you can specify a data source for the analysis in the format <agent>:<monitoring file>. If this option is not specified, the data sources defined in the analysis job are taken.

Analysis Period

Here you can specify the overall period for the evaluation in the format YYYY-MM-DD HH:MM:SS -YYYY-MM-DD HH:MM:SS.

If this option is not specified, the overall period defined in the analysis job is taken.

Variables

Here you can assign values to user-defined variables. Either you specify the assignments for several variables separated semicolons, i.e.

<variable 1>=<value 1>;<variable 2>=<value 2>;...;<variable n>=<value n> or you open the "Edit Variables" dialog box with the ... command button for editing the variables.

Result Table File

Here you can specify the file into which the result table is to be stored. The file must be specified without file extension. The format (result table or Excel) corresponds to the format used during the recording of the macro. The file name can contain a date variable and user-defined variables. If the file is specified without path it is allocated in the application data directory.

If this option is not specified, the file name specified during the macro recording is used.

Excel Macro

Here you can specify an Excel macro, which is to be executed after saving the result table as Excel file.

The Excel macro is to be specified in the format <excel file>!<macro name>. If the file is specified without path it is expected in the application data directory.

Graphics File

Here you can specify the file into which the chart is to be stored. The file must be specified without file extension. The format (metafile, bitmap or Word document) corresponds to the format used during the recording of the macro. The file name can contain a date variable and user-defined variables. If the file is specified without path it is allocated in the application data directory.

If this option is not specified, the file name specified during the macro recording is used.

Long-term File

Here you can specify the long-term file to be augmented. If the file is specified without path it is expected in the application data directory.

If this option is not specified, the long-term file specified in the analysis job is used.

Create Batch File

If this option is marked a batch file is created containing the command for executing the macro with the specified options.

6.22 The New Long-Term File / Modify Long-Term File dialog box

"New... " command in the "Long-Term Files" menu of the ANALYZER dialog box or

"Modify..." command in the "Long-Term Files" menu of the ANALYZER dialog box

With this dialog field you create a new long-term file or modify the definition of an existing long-term file.

When you open the dialog box to modify a long-term file, the individual items in the dialog box are preset with the previous definitions of the long-term file.

| 🗷 New Long-Term File | | | | |
|-------------------------|----------|----------|--------|--------|
| Type Of Long-Term File: | WINDOWS | • | | |
| | | | | |
| Interval Size: | 1 Minute | ~ | | |
| Values | | | | |
| Text For Legend | | | | New |
| TotalTime[%] | | | | |
| UserTime[%] | | | | Modify |
| PrivilegedTime[%] | | | | |
| InterruptTime[%] | | | | Copy |
| IdleTime[%] | | | | |
| AvailPhysMem[MB] | | | | Delete |
| PageFaults[/s] | | | | |
| Pagesinput/sj | | | | |
| DataBataBaad[kB/c] | | | | |
| DataRateRead[KD/S] | | | | |
| DataHateWhite[KD/s] | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| Delete Intervals | [| | | |
| | 4 | | | |
| | | ОК | Cancel | Help |
| (L | | | | |

Dialog box options

Type Of Long-Term File

Choose the type of the long-term file, BS2000, UNIX, Linux, Windows or ESX. The type cannot be modified for an existing long-term file.

Interval Size

Choose the interval size for the long-term file.

If you modify an existing long-term file, you can select only a multiple of the old interval size as new interval size. In this case the long-term file is compressed, i.e. the measurement values of several intervals are combined into a new interval.

Values

List of all values of the long-term file. The values in the list are named with the text for the legend.

New...

Opens the "New Value" dialog box.

You can define a new value in this dialog box.

Modify...

Opens the "Modify Value" dialog box with the specifications of the marked value.

You can change the value in this dialog box.

A Value can only be modified if it was not stored yet in the long-term file.

Сору

Copies the marked value. The copy is appended to the end of the list.

Delete

Deletes the marked value(s).

Delete Intervals

Opens the Delete Intervals dialog box. In this dialog box you can delete measurement values for specified intervals from the long-term file.

6.23 The New Value / Modify Value dialog box

"New... " button in the "Values" display area or

"Modify... " button in the "Values" display area

Analysis type "Create Charts"

You define or modify a value for an analysis job and specify the data source. See Dialog box options for analysis type "Create Charts"

New Long-Term File / Modify Long-Term File

You define or modify a value which is to be transferred to the long-term file. See Dialog box options for "New Long-Term File / Modify Long-Term File"

Analysis type "Analyze Long-Term Files"

You select a value from a long-term file. See Dialog box options for "Analyze Long-Term Files"

| Type Of Value Type: WINDOWS Composition Of Value Single Measurement Variable Frequengies Minimum Maximum Quantile Measurement Variable Measurement Variable Measurement Variable Measurement Variable Total Incidents Total Incidents Total Utilization Utilization Utilization Measurement Variable: DPC Hardware interrupts Total Incidents Total Utilization Utilization Measurement Variable: DPC Hardware interrupts Total Utilization Utilization Measurement Variable: Measurement Variable: Measurement Variable: Total Incidents Total Utilization Utilization Measurement Variable: Measurement Variable: Measurement Variable: Total Incidents Total Utilization Measurement Variable: Measurement Variable: Total Incidents Total Utilization Utilization Measurement Variable: Measurement Variable: Total Utilization Measurement Variable: Total Incidents Total Utilization Measurement Variable: Measurement Variable: Total Incidents Total Utilization Measurement Variable: Measurement Vari | New Value - OperatingInstruction | 1 | |
|---|--|---|--------------|
| Measurement Variable Report Group: Processor Report: DPC Hardware interrupts Total Incidents Total Utilization Utilization Utilization Utilization | Type Of Value Type: WINDOWS Composition Of Value Single Measurement Variable Eormula | Analysis Mode Mean Values Frequencies Minimum Maximum Quantile | |
| DPC TotalTime[%] Hardware interrupts UserTime[%] Total Utilization InterruptTime[%] Utilization Idle Time[%] Idle Time[%] | Measurement Variable | Measurement Variable: | |
| ОК | DPC Hardware interrupts Total Incidents Total Utilization Utilization | TotalTime[%] UserTime[%] PrivilegedTime[%] InterruptTime[%] IdleTime[%] | |
| Canc | | | OK Cancel |

When you open the dialog box to change a value, the individual items in the dialog box are preset with the previous definitions of the value.

Type Of Value

Specify the type of the value.

Type:

Specify the type of the value - BS2000, UNIX, Linux, Windows or ESX.

Version:

This specification is only necessary if BS2000 or UNIX was selected as type.

Choose the SM2 version for BS2000/OSD systems resp. the name of the derivative for UNIX systems.

The options supported for the version are then offered for selection on the "Report Group", "Report" and "Measurement Variable" tabs.

Changing the version in this field may affect the tab specifications:

If specifications have already been made for measurement variables, these specifications will be checked. Any specifications that are incompatible with the newly selected version are deleted from the tabs. All other tab specifications remain unchanged.

Composition Of Value:

Here you specify the composition of the value.

Single Measurement Variable

Choose this option if the value comprises a single measurement variable.

In this case, only one "Measurement Variable" tab is displayed in the set of tabs. You specify the measurement variable here.

Formula

Choose this option if the value comprises a number of measurement variables linked by a formula. You specify the formula in the adjacent text box.

When you exit the text box, e.g. by pressing TAB, a tab appears for each variable of the formula. You then specify the measurement variables for each variable.

Analysis Mode:

Here you specify the analysis mode for the measurement variable.

Mean Values

Choose this option to obtain the mean values of the measurement variable for the analysis subintervals.

Frequencies

Choose this option to obtain the frequency, with which the values of the measurement variable are situated within a certain range. Specify the lower and upper limit of the range in the adjacent text boxes "Lower Limit" and "Upper Limit".

Minimum

Choose this option to obtain the smallest values of the measurement variable for the analysis subintervals.

Maximum

Choose this option to obtain the largest values of the measurement variable for the analysis subintervals.

Quantile

Choose this option to obtain the alpha quantile of the measurement variable for the analysis subintervals. Specify the alpha value in the adjacent text box. Alpha must be greater than 0 and less than 1.

The set of tabs

In the set of tabs, specify a measurement variable on each tab.

The number of tabs depends on the specifications for "Composition Of Value". If you select the option "Single Measurement Variable", the set of tabs contains only one tab labeled "Measurement Variable". If you select the "Formula" option, the set of tabs contains a tab labeled "Variable" for each variable of the formula.

Report Group

From the available list, select the report group to which the report of the desired measurement variable belongs.

When you have made your selection, the "Report" list is updated with the reports belonging to the report group.

Report

From the available list, select the report of the desired measurement variable.

When you have made your selection, the " Measurement Variable" list is updated with the measurement variables of the report.

Measurement Variable.

From the available list, select the desired measurement variable.

Monitored Objects

If the report specified for "Report" supplies monitoring data for a variable number of monitored objects, specify the monitored object here.

The type of monitored object determines which fields are displayed for specifying the monitored object. For a description of the fields, see the section entitled Specification of monitored objects.

You can use user-defined variables for the specification of the monitored objects. The user-defined variables must be defined at the latest by the start of the analysis, as they are then replaced by the values assigned to them.

If the value comprises a single measurement variable, the monitored object can be specified in partially qualified form. In this case, a hit list is created.

A sample application illustrating the creation of hit lists can be found under Example 2.

Max. No. Monitored Objects In Partial Qualification

Here you specify the maximum number of hit list items to be output.

Text For Legend:

Here you can specify the text to be used as legend in the chart.

If you selected the "Formula" option for "Composition Of Value", you must enter the text for the legend otherwise you can enter the desired text or *AUTO. If you enter *AUTO a meaningful text for the legend is generated automatically.

The variable \$(MO) can be specified as placeholder for the monitored object. In the chart it is replaced by the current monitored object.

ΟΚ

Transfers the specifications for the value to the Values dialog box.

Dialog box options for New Long-Term File / Modify Long-Term File

| 🖾 New Value | |
|---|--------------|
| Type Of Value | |
| Type: WINDOWS - | |
| Composition Of Value Analysis Mode • Single Measurement Variable • Mean Values • Frequencies • Minimum • Maximum • Quantile | |
| Measurement Variable Report Group: Memory | |
| Memory amount CommittedData[MB] Miscellaneous Committiumit[MB] Page faults AvailPhysMem[MB) Pool Resident | |
| | OK Cancel |
| Text For Legend: AvailPhysMem[MB] | Help |

Type Of Value

Type:

Here the type is displayed, which you selected for the long-term file.

Version:

This specification is only necessary if BS2000 or UNIX was selected as type of the long-term file.

Choose the SM2 version for BS2000/OSD systems resp. the name of the derivative for UNIX systems.

The options supported for the version are then offered for selection on the "Report Group", "Report" and "Measurement Variable" tabs.

Changing the version in this field may affect the tab specifications:

If specifications have already been made for measurement variables, these specifications will be checked. Any specifications that are incompatible with the newly selected version are deleted from the tabs. All other tab specifications remain unchanged.

Composition Of Value, Analysis Mode, Text for Legend, Value Definition and set of tabs

For these areas the explanations under dialog box options for analysis type "Create Charts" apply with the following exceptions:

- For "Composition Of Value" only "Single Measurement Variable" can be specified.
- For "Analysis Mode" only "Mean Values" can be specified.
- The multiple selection of measurement variables is not possible.
- Monitored objects cannot be specified partially qualified.

ΟΚ

Transfers the specifications for the value to the Values dialog box.

Dialog box options for analysis type "Analyze Long-Term Files"

| 🗷 New Value - OperatingInstruct | ions | |
|--|--|--------------|
| Long-Term File | Intervals | |
| Composition Of Value Single Measurement Variable Formula Measurement Variable Report Group: Processor Report: Total Utilization | Analysis Mode Mean Values Frequencies Minimum Maximum Quantile Measurement Variable: UserTime[%] PrivilegedTime[%] | |
| | InterruptTime[%] IdleTime[%] | OK Cancel |
| Text For Legend: PrivilegedTir | ne[%] | Help |

Data Source

Long-Term File

Here you specify the long-term file to be analyzed.

Opens a dialog box, in which you can search the long-term file.

Intervals ...

....

Opens the Intervals dialog box, in which the time stamps of the intervals contained in the long-term file are displayed.

Composition Of Value:

Here you specify the composition of the value.

Single Measurement Variable

Choose this option if the value comprises a single measurement variable.

In this case, only one "Measurement Variable" tab is displayed in the set of tabs. You specify the measurement variable here.

Formula

Choose this option if the value comprises a number of measurement variables linked by a formula. You specify the formula in the adjacent input box.

When you exit the input box, e.g. by pressing TAB, a tab appears for each variable of the formula. You then specify the measurement variables for each variable.

Analysis Mode:

Here you specify the analysis mode for the measurement variable.

Mean Values

Choose this option to obtain the mean values of the measurement variable for the analysis subintervals.

Frequencies

Choose this option to obtain the frequency, with which the values of the measurement variable are situated within a certain range. Specify the lower and upper limit of the range in the adjacent text boxes "Lower Limit" and "Upper Limit".

Minimum

Choose this option to obtain the smallest values of the measurement variable for the analysis subintervals.

Maximum

Choose this option to obtain the largest values of the measurement variable for the analysis subintervals.

Quantile

Choose this option to obtain the alpha quantile of the measurement variable for the analysis subintervals. Specify the alpha value in the adjacent text box.

Text For Legend:

Specify the text for the legend.

If you selected the option "Single Measurement Variable" for "Composition Of Value", a suggested text is automatically entered in this text box when you make your selection for "Measurement Variable" on the "Measurement Variable" tab. You can then modify the suggested text if you wish.

The variable \$(MO) can be specified as placeholder for the monitored object. In the chart it is replaced by the current monitored object.

The set of tabs

In the set of tabs, specify a measurement variable on each tab.

The number of tabs depends on the specifications for "Composition Of Value". If you select the option "Single Measurement Variable", the set of tabs contains only one tab labeled "Measurement Variable". If you select the "Formula" option, the set of tabs contains a tab labeled "Variable" for each variable of the formula.

Report Group

The selection field contains all report groups contained in the long-term file.

From the available list, select the report group to which the report of the desired measurement variable belongs.

When you have made your selection, the "Report" list is updated with the reports belonging to the report group.

Report

The list contains all reports of the selected report group contained in the long-term file.

From the available list, select the report of the desired measurement variable.

When you have made your selection, the " Measurement Variable" list is updated with the measurement variables of the report.

Measurement Variable.

The list contains all measurement variables of the selected report contained in the long-term file. From the available list, select the desired measurement variable.

Monitored Objects

The list contains all monitored objects of the selected measurement variable contained in the long-term file.

From the available list, select the desired monitored object.

ΟΚ

Transfers the specifications for the value to the Values dialog box.

6.24 The Open Analysis Job dialog box

"Open Job ... " command in the "Analysis" menu

Opens an analysis job stored in the database for analyses.

In this case, the specifications for the analysis job are transferred to the display areas of the "ANALYZER" dialog box.

| Type Of Analysis. | | |
|------------------------------|---|--------|
| Create Charts | • | ОК |
| <u>S</u> elect Analysis Job: | | |
| MACRO: Sar-d-3 | ~ | Cancel |
| MACRO: Sar-d - 4 | | |
| MACRO: Sar-d - 5 | | Help |
| MACRO: Sar-d-6 | | |
| MACRO: Sar-g | | |
| MACRO: Sar-k | | |
| MACRO: Sar-m | | |
| MACRO: Sar-p | | |
| MACRO: Sar-q | | |
| MACRO: Sar-r | ~ | |



Dialog box options

Type Of Analysis:

Choose the type of analysis to be performed. All analysis jobs for this type of analysis are then displayed in the list below.

Select Analysis Job:

From the list, choose the name of the analysis job you want to open.

OK

The analysis job is opened.

6.25 The Open Macro dialog box

"Open..." command in the "Edit Macro" dialog box

Opens a macro saved in the database for analyses.

| 🗹 Open Macro | |
|--|--------|
| <u>S</u> elect Macro: | |
| NET_SOL NET_SOL_DIAGRAMME SAR_CPU_DIAGRAMME SAR_SOL | |
| STATVFS_SOL TEST UNIXStandardAnalysis | ОК |
| WURKLUADULASS_SUL | Cancel |
| | Help |

Dialog box options

Select Macro:

From the list, choose the name of the macro you want to open.

OK

The macro is opened.

6.26 The Output Options dialog box

"Modify..." button in the "Output Options" display area

You can use this dialog box to edit the output options for the analysis job displayed in the "Output Options" area of the "ANALYZER" dialog box.

When the dialog box is opened, the items in the box are preset with the values from the "Output Options" display area of the "ANALYZER" dialog box.

| 🗷 Output Options - WindowsStandard: CPUTime 🛛 🛛 🔀 | | |
|---|-----------------------------------|--|
| Type Of Time Axis | | |
| Overall <u>P</u> eriod | ○ Time <u>W</u> indo w | |
| Analysis Subintervals | | |
| • Automatic | | |
| C Number Of Intervals | 60 | |
| ○ <u>L</u> ength Of Interval | 120 Seconds 💌 | |
| Analysis <u>T</u> itle: | | |
| *AUTO | | |
| Analyze Process <u>H</u> it List File | | |
| ОК | Cancel Help | |

Dialog box options

Type Of Time Axis

Here you define the type of time axis.

A sample application indicating the effects of setting the type of time axis can be found under Example 1.

Overall Period

The time axis is formed from the overall period.

Time Windows

The time axis is formed from the time windows.

Analysis Subintervals

Defines how the time axis is subdivided into analysis subintervals.

Automatic

If you choose this option the length of an analysis subinterval is set automatically depending on the length of the monitoring cycle and the time axis.

Number Of Intervals

Choose this option if you want a fixed number of analysis subintervals. The time axis is divided equally into the specified number of intervals.

Length Of Interval

Choose this option if you want to assign a fixed length to the analysis subintervals. The time axis is divided into analysis subintervals of the specified length.

Analysis Title

Here you can specify a title for the analysis which is used as heading in the chart. The maximum permitted length is 80 characters.

You can use a date variable and user-defined variables for the specification of the title. The userdefined variables must be defined at the latest by the start of the analysis, as they are then replaced by the values assigned to them. If you do not specify a title it is generated automatically.

Analyze Process Hit List File

Here you specify whether the process hit list file belonging to the monitoring file is to be analyzed. This option can only be selected if only one monitoring file is analyzed in the analysis job.

OK

Your entries are transferred to the "Output Options" display area of the "ANALYZER" dialog box.

6.27 The Parameters dialog box

"Modify..." button in the "Parameters" display area

You can use this dialog box to edit the parameters for the analysis job displayed in the "Parameters" area of the "ANALYZER" dialog box.

When the dialog box is opened, the items in the box are preset with the values from the "Parameters" display area of the "ANALYZER" dialog box.

| 🗷 Parameters | | × |
|-----------------------|--------|----------------|
| Main Application: | BATCH | • |
| -Important Categories | | |
| BATCH1 BATCHF | | <u>N</u> ew |
| | | <u>M</u> odify |
| | | <u>D</u> elete |
| | | |
| ОК | Cancel | Help |



Dialog box options

Main Application

Choose the main application of the installation: transaction processing (TP), dialog mode (DIALOG) or batch processing (BATCH).

Important Categories

List of the important categories. If you do not specify any categories ANALYZER defines the important categories. The criterion for the importance of a category is the weight. From all categories the third with the largest weight is selected.

New...

Opens the "Add Category" dialog box, in which you can specify the name of the category to be added to the list of important categories.

Modify...

Opens the "Modify Category" dialog box, in which you can modify the name of the category marked in the list of important categories.

Delete

Deletes the category marked in the list from the list of important categories.

6.28 The Report dialog box

"Show Result... " command in the "Analysis" menu of the "ANALYZER" dialog box

In this dialog box the result of an analysis of the type "Generate Report" is displayed.

Structure of the Report

The dialog box consists of the Measurement, Inventory and Mean Values tab as well as a tab for each value in the analysis job.

"Measurement" tab

This tab contains the specifications for the analysis period, the output options as well as the analyzed data sources.

| Report | | |
|------------------|------------------|--|
| le <u>?</u> | | |
| . 🛯 🖉 | | |
| deasurement In | ventory Mean \ | /alues CPU-Total/TotalTime[%] CPU-Total/UserTime[%] CPU-Total/PrivilegedTime[%] CPU-Total/Interrug 💶 🕨 |
| Analysis Peri | od | |
| Overall Peri | od: | 2007-05-16 07:00:00 - 2007-05-16 17:00:00 |
| Time Windo | ws: | - |
| Exception P | eriods: | - |
| | | |
| | | |
| Output Option | IS | |
| Type Of Tim | ne Axis: | Overall Period |
| Analysis Sul | binterval: | 2 Minutes |
| | | |
| Data Sources | : | |
| Server Name | Monitoring File | |
| MCP0283C | D:\Projekte\Ana | alyzer V7.0\Data\mwd.MCP0283C |
| MCP0332C | D:\Projekte\Ana | alyzer V7.0\Data\mwd.MCP0332C |
| MCP0471C | D:\Projekte\Ana | alyzer V7.0\Data\mwd.MCP0471C |
| MCP0553C | D:\Projekte\Ana | alyzer V7.0\Data\mwd.MCP0553C |
| • | | • |
| | | |

"Inventory" tab

This tab contains for each server information about the hard- and software.

| | Report 🖉 | | | | | | | | _ | |
|---|---------------|---------------|-------------|------------------------------|------------|-----------------|-------------------------|-------------------|---------------|------|
| Γ | <u>File ?</u> | | | | | | | | | |
| Ī | 🔒 \mid 🕵 🎒 🚺 | 2) | | | | | | | | |
| | Measurement | Inventory Me | an Values | CPU-Total/TotalTime[S | «] СРU-Т | otal/UserTime[1 | %] CPU-Total/Privileg | gedTime[%] CPU-Ti | otal/Interrup | • • |
| | Server Name | IP address | Operating s | system name | Version | System model | System manufacturer | Phys. memory [MB] | Domaine | Numl |
| | MCP0553C | 172.25.83.77 | Microsoft W | , vindows XP Professional | 5.1.2600 | SCENIC L | FUJITSU SIEMENS | 511 | fsc.net | |
| | MCP0471C | 172.25.123.85 | Microsoft W | vindows XP Professional | 5.1.2600 | SCENIC L | FUJITSU SIEMENS | 511 | fsc.net | |
| | MCP0332C | 172.25.83.19 | Microsoft W | vindows XP Professional | 5.1.2600 | SCENIC L | FUJITSU SIEMENS | 511 | fsc.net | |
| | MCP0283C | 172.25.83.76 | Microsoft W | vindows XP Professiona | 5.1.2600 | SCENIC L | FUJITSU SIEMENS | 511 | fsc.net | |
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"Mean Values" tab

This tab contains for each server the mean values of all values in the analysis job for the analysis period.

| | 🖉 Report | | | | | | |
|---|---------------|---------------------------|--------------------------|--------------------------------|-------------------------------|--------------------------|--------------------------------------|
| Γ | <u>File ?</u> | | | | | | |
| Ī | 🖬 💁 🎒 0 | <u>?)</u> | | | | | |
| | Measurement | Inventory Mean Value | S CPU-Total/TotalTir | ne[%] CPU-Total/Use | erTime[%] CPU-Total/ | PrivilegedTime[%] CF | PU-Total/Interrup <mark>. ▲ ▶</mark> |
| | Server Name | CPU-Total TotalTime[%] | CPU-Total UserTime[%] | CPU-Total PrivilegedTime[%] | CPU-Total InterruptTime[%] | CPU-Total IdleTime[%] | Memory AvailPhysMem[MB] |
| | MCP0553C | 7.892 | 4.345 | 3.552 | 0.126 | 0.000 | 90.76 |
| | MCP0471C | 8.451 | 4.823 | 3.627 | 0.055 | 0.000 | 125.58 |
| | MCP0332C | 10.985 | 4.942 | 5.887 | 0.246 | 0.000 | 111.13 |
| | MCP0283C | 10.846 | 5.196 | 5.657 | 0.181 | 0.000 | 103.38 |
| | | | | | | | |
| | • | | | | | | Þ |

Tab for value in the analysis job

This tab contains for each server the mean value, the standard deviation, the minimum and the maximum of the value in the analysis job for the analysis period.

| | Report | | | | | | | _ 🗆 🔀 |
|----|--------------|----------------|---------------|---------------|----------------|---------------------|-----------------------------|---------------------|
| E | ile <u>?</u> | | | | | | | |
| | | ?) | | | | | | |
| ľ. | | | | | Time regillers | | | |
| | Measurement | Inventory Me | ean Values [U | -O-Total/Tota | Time[%] CPU | J-Total/UserTime[%] | CPU-Total/PrivilegedTime[%] | CPU-1 otal/Interrup |
| | Server Name | Mean Value | StdDeviation | Minimum | Maximum | | | |
| | MCP0553C | 7.892 | 8.466 | 2.300 | 55.750 | | | |
| | MCP0471C | 8.451 | 8.158 | 0.270 | 53.420 | | | |
| | MCP0332C | 10.985 | 12.050 | 0.030 | 55.170 | | | |
| | MCF0203C | 10.046 | 12.353 | 0.450 | 67.230 | | | |
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Save and print report

You can save the report in a file and print it.

Dialog box options of the menu bar resp. tool bar

File

Opens the list of commands for saving and printing the report.

Save...

Opens the "Save Report" dialog box, in which you can specify under which name and in which format the report is to be saved.

Page View

Opens a dialog box, in which the pages of the report can be displayed before printing.

🖨 Print

Opens a dialog box for printing the report.

6.29 The Result Of Long-Term File Augmentation dialog box

"Show Result... " command in the "Analysis" menu of the "ANALYZER" dialog box

In this dialog box the result of an analysis job of type "Augment Long-Term Files" is displayed.

| 🗷 Result Of Long-Term File Augmer | ntation - D:\Proj | ekte\Analyzer 🔯 |
|--------------------------------------|-------------------|---------------------|
| Last Interval In Long-Term File: | | 2005-07-20 23:00:00 |
| Number Of New Intervals In Long-Tern | n File: | 24 |
| Errors | | |
| Value | Error Message | |
| | | > |
| | Close | Help |



Dialog box options

Last Interval In Long-Term File

Time stamp of the temporally last interval in the long-term file.

Number Of New Intervals In Long-Term File

Number of intervals, which were transfered into the long-term file during the augmentation.

Errors

In this area errors, which occurred during the augmentation of single values, are displayed.

Value

Here the value, described by the text for legend, is displayed.

Error Message

Here the error is described, which occurred during the analysis of the value.

6.30 The Result Tables dialog box

"Show Result... " command in the "Analysis" menu of the "ANALYZER" dialog box

In this dialog box, the result of an analysis of type "Create Charts" or "Analyze Long-Term File" is displayed in the form of a result table and can be edited. The dialog box can contain several result tables at the same time.

Structure of the result table

The precisely defined structure of the result table supports the analysis with Excel macros. A detailed description can be found under the section entitled Structure of the result table.

Saving the result table

The result table can be saved in the clipboard or in a file.

| 🗷 Result Tables | | | |
|--|------------|------------|------------|
| <u> Eile E</u> dit <u>C</u> hart <u>?</u> | | | |
| | | | |
| | 1 | 2 | 2 |
| 2006-0E-0210-1E-00-2006-0E-0216-2E-00 | - | 2 | 3 |
| 2000-05-05 10:15:00 - 2008-05-05 18:25:00 | | | |
| | | | |
| | | | |
| | | | |
| 0 | | | |
| | | | |
| | | | |
| | | | |
| 74 | | | |
| 3 | \$(SERVER) | \$(SERVER) | \$(SERVER) |
| | | | |
| | | | |
| | MCP0332C | MCP0471C | MCP0553C |
| Mean Value | 9.830 | 5.151 | 4.645 |
| Standard Deviation | 7.351 | 4.375 | 4.194 |
| Minimum | 2.844 | 0.440 | 0.898 |
| Maximum | 39.614 | 21.142 | 19.160 |
| 2006-05-03 10:15:00 | 5.500 | 2.198 | 3.094 |
| 2006-05-03 10:20:00 | 5.160 | 9.576 | 2.544 |
| 2006-05-03 10:25:00 | 5.210 | 4.826 | 2.028 |
| 2006-05-03 10:30:00 | 4.984 | 0.710 | 5.482 |
| 2006-05-03 10:35:00 | 6.664 | 0.456 | 2.246 |
| 2006-05-03 10:40:00 | 11.598 | 1.606 | 2.690 |
| 2006-05-03 10:45:00 | 9.210 | 1.360 | 3.950 |
| 2006-05-03 10:50:00 | 12.428 | 2.968 | 3.298 |
| 2006-05-03 10:55:00 | 9.054 | 3.248 | 13.754 |
| 2006-05-03 11:00:00 | 8.720 | 4.292 | 3.326 |
| 2006-05-03 11:05:00 | 7.964 | 3.523 | 1.622 |
| 2006-05-03 11:10:00 | 8.598 | 5.294 | 1.758 |
| | | 01.1.40 | 0.400 |
| | | | |
| | | | |

Dialog box options of menu bar resp. tool bar

File

Opens the list of commands for opening and saving result tables.

൙ Open...

Opens a dialog box, in which you can specify the result table file to be opened.

日 Save...

Opens the "Save Result Table" dialog box.

In this dialog box you can save the result table in a file or in the clipboard.
Edit

Opens the list of commands for editing result tables.

X Delete

Deletes the current result table.

Chart

Opens the list of commands for creating charts.

🔀 Time Series...

Opens the "Create Chart" dialog box if no areas are marked in the result table; otherwise the data of the marked area of the result table is displayed in the "Charts" dialog box as time series chart.

Correlation...

Opens the "Create Chart" dialog box if no areas are marked in the result table; otherwise the data of the marked area of the result table is displayed in the "Charts" dialog box as correlation chart.

6.31 The Save Analysis Job dialog box

"Save Job ... " command in the "Analysis" menu

The analysis job shown in the display areas of the "ANALYZER" dialog box is saved in the database for analyses.

| 🗹 Save Analysis Job | | × |
|-------------------------------|---|--------|
| <u>N</u> ame Of Analysis Job: | | |
| cpu | | ОК |
| Saved Analysis Johs | | |
| MACBO: Sar-a | | Cancel |
| MACRO: Sar-b-1 | | |
| MACRO: Sar-b-2 | | Help |
| MACRO: Sar-c | | |
| MACRO: Sar-d - 1 | | |
| MACRO: Sar-d-2 | | |
| MACRO: Sar-d-3 | | |
| MACRO: Sar-d-4 | | |
| MACRO: Sar-d-5 | | |
| MACRO: Sar-d - 6 | * | |
| | | |

Dialog box options

Name Of Analysis Job

Specify the name under which the analysis job is to be saved in the database. For the analysis types "Create Charts" and "Analyze Long-Term Files" the name is preset as the title you assigned to the analysis job.

Saved Analysis Jobs:

Displays a list of the names of the already saved analysis jobs for analyses of the current type.

ΟΚ

The analysis job is stored in the database.

6.32 The Save Automatic Analysis dialog box

"Save ... " command in the "File" menu of the "Automatic Analysis" dialog box

In this dialog box the result of the automatic analysis can be saved.

| 🗷 Save Automatic Analysis | |
|-----------------------------------|--------|
| C As <u>W</u> ord Document | ОК |
| ◯ As <u>T</u> ext File | Cancel |
| As <u>Automatic Analysis File</u> | Help |

Dialog box options

As Word Document

The result of the automatic analysis is to be saved as Word document. The automatic analysis can only be saved as a Word document if Word is installed on the PC.

As Text File

The result of the automatic analysis is to be saved as text file.

As Automatic Analysis File

The result of the automatic analysis is to be saved as automatic analysis file.

You can open an automatic analysis file at any time in the "Automatic Analysis" dialog box for further handling.

οκ

A dialog box is opened, in which you can specify where and under which file name the result of the automatic analysis is to be saved.

6.33 The Save Chart dialog box

"Save... " command in the "File" menu of the "Chart" dialog box

In this dialog box you can save the active chart to a file or in the clipboard.

| 🗷 Save Chart | $\overline{\mathbf{X}}$ |
|---|-------------------------|
| Save | [/······ |
| 🔿 In <u>C</u> lipboard | ОК |
| C As <u>G</u> raphics File | Cancel |
| As Word Document | Help |
| Format | |
| ⊂ <u>M</u> etafile ● <u>B</u> itmap | |
| | |

Dialog box options

Save

Here you specify where the chart is to be saved.

In Clipboard

Choose this option if you want to save the chart in the clipboard.

As Graphics File

Choose this option if you want to save the chart as a graphics file.

As Word Document

Choose this option if you want to save the chart as a Word document. The chart can only be saved as a Word document if Word is installed on the PC.

Format

For the "In Clipboard" and "As Word Document" options, you specify here the format in which the chart is to be saved.

Metafile

The chart is saved in Windows Metafile format.

Bitmap

The chart is saved as Bitmap.

OK

The chart is saved.

If you choose the "As Graphics File" or the "As Word Document" option, a dialog box is opened in which you can specify where the file is to be saved and under what name.

For the "As Graphics File" option, here you can select the file type Bitmap (*.bmp), JPEG (*.jpg), PNG (*.png) or Metafile (*.wmf).

You can use the date variable and user-defined variables for the file name.

6.34 The Save Configuration dialog box

"Save..." command in the "File" menu of the "Configuration" dialog box

In this dialog box you can save the configuration in the clipboard, in an Excel file or in a configuration file.

| Save Configuration | X |
|------------------------|--------|
| As Configuration File | ОК |
| C In <u>C</u> lipboard | Cancel |
| C As Excel File | Help |



Dialog box options

As Configuration File

Choose this option if you want to save the configuration as a configuration file. You can open a configuration file at any time in the "Configuration" dialog box for further handling.

In Clipboard

Choose this option if you want to save the configuration in the clipboard.

As Excel File

Choose this option if you want to save the configuration as an Excel file. The configuration can only be saved as an Excel file if Excel is installed on the PC.

OK

The configuration is saved.

If you choose the "As Excel File" or "As Configuration File" option, a dialog box is opened in which you can specify where the file is to be saved and under what name. You can use the date variable and user-defined variables for the file name.

6.35 The Save Macro dialog box

"Stop Recording..." command in the "Macro" submenu of the "Extras" menu

or "Save..." command in the "Edit Macro" dialog box

Stores the macro in the database for analyses.

| 🗷 Save Macro | × |
|--|--------|
| Name Of Macro | ОК |
| Saved <u>M</u> acros | Cancel |
| NET_SOL NET_SOL_DIAGRAMME SAR_CPU_DIAGRAMME SAR_SOL STATVFS_SOL TEST UNIXStandardAnalysis WORKLOADCLASS_SOL | Help |



Dialog box options

Name Of Macro

Specify the name under which the macro is to be saved in the database. The name must not contain blanks or hyphens.

Saved Macros:

Displays a list of the names of the macros that have already been saved.

ΟΚ

The macro is stored in the database.

6.36 The Save Report dialog box

"Save ... " command in the "File" menu of the "Report" dialog box

In this dialog box you can save the report in a file.

| 🗷 Save Report | | \sim |
|--|---|--------|
| Save As <u>W</u> ord Docum | ОК | |
| As Excel File | | Cancel |
| ○ As CS <u>V</u> File | | Help |
| Delimiters C Tab C Comma C Other: | € <u>S</u> emicolon Ĉ Sp <u>a</u> ce | |
| Format Of Numbers | € English | |

Dialog box options

Save

Here you specify where the report is to be saved.

As Word Document

The report is to be saved as Word document.

The report can only be saved as a Word document if Word is installed on the PC.

As Excel File

Choose this option if you want to save the report as an Excel file. The report can only be saved as an Excel file if Excel is installed on the PC.

As CSV File

Choose this option if you want to save the report as CSV file (text separated by delimiters).

Delimiters

If you choose "As CSV File" specify here the delimiters with which the elements of the report are to be separated.

Format Of Numbers

If you choose "As CSV File" specify here the format to be used for the numbers in the report.

German

German format, i.e. comma as decimal character.

English

English format, i.e. point as decimal character.

ΟΚ

The report is saved.

You can use the <u>date variable</u> and user-defined <u>variables</u> for the file name.

6.37 The Save Result Table dialog box

"Save..." command in the "File" menu of the "Result Tables" dialog box

In this dialog box you can save the current result table in the clipboard or in a file.

| 🗷 Save Result Table 🛛 🛛 🔀 | | | | |
|---|--------|--|--|--|
| Save C In <u>C</u> lipboard | ОК | | | |
| C As Excel File | Cancel | | | |
| As <u>R</u>esult Table File As CS<u>V</u> File | Help | | | |
| Delimiters | | | | |
| ○ <u>T</u> ab | | | | |
| C Co <u>m</u> ma C Sp <u>a</u> ce | | | | |
| © <u>O</u> ther: | | | | |
| Format Of Numbers | | | | |
| <u>⊂ G</u> erman | | | | |



Dialog box options

Save

Here you specify where the result table is to be saved.

In Clipboard

Choose this option if you want to save the result table in the clipboard.

As Excel File

Choose this option if you want to save the result table as an Excel file.

The result table can only be saved as an Excel file if Excel is installed on the PC.

As Result Table File

Choose this option if you want to save the result table as a result table file.

As CSV File

Choose this option if you want to save the result table as CSV file (text separated by delimiters).

Delimiters

If you choose "In Clipboard" or "As CSV File" specify here the delimiters with which the columns of the result table are to be separated.

Format Of Numbers

If you choose "In Clipboard" or "As CSV File" specify here the format to be used for the numbers in the result table.

German

German format, i.e. comma as decimal character.

English

English format, i.e. point as decimal character.

OK

The result table is saved.

When saving into a file you can use the date variable and user-defined variables for the file name.

6.38 The Select Data Source dialog box

"New..." or "Modify..." command in the "Data Sources" menu

resp.

"New..." or "Modify..." button on the "Data Sources" tab

In this dialog box you specify a data source for the analysis by explicit specification of a monitoring file and the agent responsible for the analysis.

| 🗷 Select Data S | оигсе | | | \sim |
|--|--------------------------------|-----------|--------|----------|
| - Data Source - <u>A</u> gent: | mcp0332c | • | | |
| <u>M</u> onitoring Fil D:∖openSM2_\ | e: /7.0\mwd.MCP0332C.06-05- | 03.101046 | | . |
| | | ОК | Cancel | Help |



Dialog box options

Data Source

Here you specify the data source.

Agent

Here you specify the agent the analysis job is to be sent to.

As agent the computer name of the computer the agent is running on is specified. All registered agents are offered for the selection.

You can use user-defined variables for the specification of the agent. The user-defined variables must be defined at the latest by the start of the analysis, as they are then replaced by the values assigned to them.

Monitoring File

Specify the monitoring file to be analyzed.

If you want to analyze the current SM2 monitoring file in BS2000/OSD, i.e. the monitoring file which SM2 has just opened and is now writing, specify "*CURRENT" here.

You can use a date variable and user-defined variables for the specification of the monitoring file. The user-defined variables must be defined at the latest by the start of the analysis, as they are then replaced by the values assigned to them.

....

The file names of monitoring files lying on the computer, on which the agent specified for "Agent" is running are displayed in the "Monitoring File" field.

If a search string is specified in the "Monitoring File" field only the files are supplied, which correspond to the search string.

For BS2000/OSD the search string must match the syntax of the ISP command FSTAT. For example, the search string "*, crdate=today" supplies all files that were created or modified on the current day.

For UNIX and Linux systems the search string is attached to the command "Is -1p".

For Windows systems a search string that specifies a valid directory or a valid path and filename, which can contain wildcard characters (* and ?) is permissible.

If more than 100 files match the search string, only the first 100 are displayed.

6.39 The Settings dialog box

"Settings..." command in the "Options" menu

In this dialog box you can change global settings.

Dptions on the General tab

| 🗷 Settings 🛛 🛛 🔀 |
|--|
| General Environment |
| Default <u>Port Number For Agents</u> : 5000 |
| Search Data Sources At Program Start |
| |
| |
| OK Cancel Help |

On this tab you can modify general settings.

Default Port Number for Agents

Here you specify the port number of the port via which the manager is to communicate with the agents as standard.

This port number is used if *STD is entered as port number in the "Edit Agent" dialog box.

Search Data Sources At Program Start

If "Search Data Sources At Program Start" is marked at program start all registered agents are ordered to search existing data sources and the found data sources are displayed in the "Available Data Sources" display area.

Options on the Environment tab

| 🗷 Settings | X |
|--|----------|
| General Environment | |
| Initialization File | |
| D:\Program Files\openSM2 V7.0\Analyzer Manager\Analyzer.ini | |
| Database for Analyses | |
| D:\Profiles\Administrator\Application Data\openSM2 V7.0\ANALYZER\Analyses.m | |
| Database for <u>Ag</u>ents D:\Profiles\Administrator\Application Data\openSM2 V7.0\ANALYZER\Agents.mdb | |
| | |
| OK Cancel Help | D |

On this tab you specify the path names of the initialization file and the databases.

The files can be stored central on a server and be used by several users of ANALYZER.

Initialization File

Here you specify the path name for the initialization file.

Database for Analyses

Here you specify the path name for the database for analyses.

Database for Agents

Here you specify the path name for the database for agents.

6.40 The Show Contents Of Long-Term File dialog box

"Show Contents..." command in the "Long-Term Files" menu of the ANALYZER dialog box

In this dialog box the definition of the long-term file and the contained time intervals are displayed.

| 🖾 Show Contents Of Long-Term File 🛛 🛛 🔀 | | | | | | | |
|---|----------------------|---------------------|----------|--------------------|-------------|------------------|--|
| Name Of Lo | ong-Term File: | D:\Projekte\Analyze | r V5.0\D | ata\D016ZE04.Itd | | | |
| Creation Da | ate: | 2005-07-19 10:01:06 | | Number Of Interval | s: 36 | | |
| Server Nan | ne: | D016ZE04 | | Interval Size: | 1 He | Dur | |
| Server Typ | e: | BS2000 | | First Interval: | 200 | 5-07-19 00:00:00 | |
| CPU Type: | | S150-60 | | Last Interval: | 200 | 5-07-21 08:00:00 | |
| | | | | | | | |
| Values: | | | | | | | |
| Legend | | | Formula | Analysis Mode | Lower Limit | Upper Limit | |
| TU time (%) | | | a | Mean Values | | | |
| TPR time (% | 5) | | a | Mean Values | | | |
| SIH time (%) | | | a | Mean Values | | | |
| Idle time (%) | | | a | Mean Values | | | |
| | | | | | | | |
| Measurem | ent Variables Inti | ervals | | | | | |
| Variable | Report Group | Report | | Measurement Vari | able | Monitored Object | |
| a | CPU | Utilization normed | | TPR time | | | |
| | | | | | | | |
| | | | | | Close | Help | |

Dialog box options

In the upper area of the dialog box general informations about the long-term file are displayed.

Values

The table contains all values, which are defined for the long-term file. For each value the text for legend, the formula and the analysis mode are displayed. In case of analysis mode "Frequencies" the lower and upper limit are displayed additionally.

Mark a line in the table to display the definition of the value and the intervals.

Measurement Variables

The table contains the measurement variables for each variable in the formula for the definition of the value marked in the "Values" table. The measurement variables are specified by report group, report, measurement variable and monitored object if necessary.

Intervals

The table contains the time stamps of all intervals for which measurement values of the value marked in the "Values" table are present in the format YYYY-MM-DD HH:MM:ss.

Additionally the intervals are displayed graphically in order to mark missing intervals. In the diagram with pressed left mouse button the time stamp appropriate to the mouse position is indicated. The diagram gives only an approximate overview of the existing intervals; in particular small gaps are sometimes not to be recognized with a long-term file with many intervals.

6.41 The Time Stamps dialog box

"Time Stamps... " command in the context menu of the "Available Data Sources " display area resp.

"Time Stamps..." command in the context menu of the "Data Sources " tab

In this dialog box the time stamps of the specified monitoring file are displayed.

| 🗷 Time Stamps | × |
|------------------------------|----------------------------|
| <u>M</u> onitoring File | |
| 20SG:\$MESSEN.SM2.MWD.D01 | GZE04.2005-07-20201.000209 |
| Resolution | |
| C First And Last Time Star | ıp |
| ⊂ <u>D</u> ays | |
| • Hours | |
| C Cycles | |
| | |
| ⊢Time Stamps Of Monitoring F | -ile |
| 2005-07-20 02:00:02-02:58:01 | 30 cycles |
| 2005-07-20 03:00:01-03:58:01 | 30 cýcles |
| 2005-07-20 04:00:01-04:58:02 | 30 cycles |
| 2005-07-20 05:00:00-05:58:01 | 30 cycles |
| | 30 cycles |
| 2005-07-20 07:00:01-07:58:02 | 30 cycles |
| 2005-07-20 08:00:00-08:58:01 | 30 cycles 💌 |
| | |
| Show | Conv To Analysis Period |
| 3211311 | |
| | |
| | Close Help |
| | |



Monitoring File

Here the name of the monitoring file is displayed.

Resolution

Choose the requested resolution.

First And Last Time Stamp

The first and last time stamp contained in the monitoring file is displayed.

This option is preset when the dialog box is opened.

Days

The days contained in the monitoring file are displayed.

Hours

The hours contained in the monitoring file resp. the hours within the period marked in the area "Time Stamps Of Monitoring File" are displayed.

Cycles

The cycles contained in the monitoring file resp. the cycles within the period marked in the area "Time Stamps Of Monitoring File" are displayed.

Time Stamps Of Monitoring File

Here the requested time stamps are displayed. The format depends on the selected resolution:

| Resolution | Format |
|---------------------------|---|
| First and last time stamp | YYYY-MM-DD HH:MM:SS – YYYY-MM-DD HH:MM:SS |
| Days | YYYY-MM-DD HH:MM:SS – HH:MM:SS <n> cycles</n> |
| Hours | YYYY-MM-DD HH:MM:SS – HH:MM:SS <n> cycles</n> |
| Cycles | YYYY-MM-DD HH:MM:SS |

<n> is the number of cycles within the day resp. the hour.

The first and last time stamp is already displayed when the dialog box is opened.

You can mark periods and request the time stamps.

Show

The time stamps of the periods marked in the "Time Stamps Of Monitoring File" area are displayed in the "Time Stamps Of Monitoring File" area with the resolution selected under "Resolution".

Copy To Analysis Period

The first and last time stamp of the periods marked in the area "Time Stamps Of Monitoring File" are copied to the analysis period.

7 Appendix

7.1 Measurement variables, reports, and report groups

ANALYZER supplies measurement values for numerous measurement variables. Logically associated measurement variables are combined in reports. In turn, the reports are organized into report groups.

7.1.1 BS2000/OSD

With a few exceptions, ANALYZER supplies the measurement values for the measurement variables of all reports, which are also output by the BS2000 analysis routine SM2R1.

For a precise description of the SM2 measurement variables, please refer to the SM2 User Guide under the section "Table of variables reports". The report numbers used in the table are displayed in the "Reports" list of the "New Value Definition" dialog box and the "New Value / Modify Value" dialog box when you double-click on the report there.

| Report Group | Report Name | R# | Meas. Variable | Description |
|--------------|-------------|----|---|---|
| CPU-Total | Queue | 3 | QueueLength | Average number of runnable |
| | | | | processes in memory |
| | | 3 | Queue[%] | Utilization of cpu queue [%] |
| | Time | 1 | DelaydInterrupts[/s] *) | Number of delayed interrupts |
| | | | | [/s] |
| | | | IdleTime[%] | Time idle [%] |
| | | | IdleWaitIOTime[%] | Time idle with process waiting |
| | | | | for block IO [%] |
| | | | Interrupts[/s] *) | Number of interrupts [/s] |
| | | | SystemTime[%] | Time running in system mode |
| | | | | [%] |
| | | | UserTime[%] | Time running in user mode [%] |
| CPU | Activity | 19 | DelaydInterrupts[/s] | Number of delayed interrupts |
| | | | | [/s] for CPU |
| | | | IdleTime[%] | Time idle [%] for CPU |
| | | | IdleWaitIOTime[%] | Time idle with process waiting |
| | | | | for block IO [%] for CPU |
| | | | Interrupts[/s] | Number of interrupts [/s] for CPU |
| | | | ProcessSwitches[/s] | Process switches [/s] for CPU |
| | | | SystemTime[%] | Time running in system mode [%] for CPU |
| | | | UserTime[%] | Time running in user mode [%] |
| | | | WaitSpipLocks | Waits due to spin locks for CPU |
| Device-Total | Data | 46 | Riocke[/s] **) | Total amount of data transferred |
| Device-Total | Data | 40 | | to physical disk in 512-byte |
| | | | | blocks [/s] |
| | Transfers | 45 | Reads+Writes[/s] **) | Total number of data transfers |
| | | | , | to physical disk [/s] |
| Device | Activity | 2 | Blocks[/s] | Transferred blocks [/s] for |
| | | | | device |
| | | | Busv[%] | Transfer request time [%] for |
| | | | | device |
| | | | QueueLength | Outstanding requests for device |
| | | | Reads+Writes[/s] | Data transfers [/s] for device |
| | | | Reads[/s] **) | Data reads [/s] for device |
| | | | ServiceTime[ms/Tr] | Transfer service time [ms] for |

7.1.2 UNIX

| | | | | device |
|------------|------------|----|----------------------|--|
| | | | WaitTime[ms/Tr] | Transfer wait time [ms] for |
| | | | | device |
| | | | Writes[/s] **) | Data writes [/s] for device |
| FileSystem | FileSystem | 26 | AvailableSpace[kB] | Available disk space [kB] for file system |
| | | | FreeSpace[kB] | Free disk space [kB] for file |
| | | | TotalSpace[kB] | Total disk space [kB] for file |
| | | | UsedSpace[%] | Used disk space [%] for file |
| | | | UsedSpace[kB] | Used disk space [kB] for file |
| Locks | Activity | 18 | kslck[/s] *) | Overall number of kernel locks |
| | | | spick[/s] *) | Overall number of spin locks [/s] |
| | | | wkslck *) | Waits due to kernel locks |
| | | | wspick *) | Waits due to spin locks |
| Memory | Cache | 4 | CacheDeviceReads[/s] | Number of 512-byte blocks |
| litionity | Cuche | | | transferred from disk to system buffers [/s] |
| | | | CacheDeviceWrite[/s] | Number of 512-byte blocks transferred from system buffers to disk [/s] |
| | | | CacheReadHits[%] | Read cache hit ratio [%] |
| | | | CacheReads[/s] | Read accesses to system buffers [/s] |
| | | | CacheWriteHits[%] | Write cache hit ratio [%] |
| | | | CacheWrites[/s] | Write accesses to system buffers [/s] |
| | | | RawDeviceReads[/s] | Number of physical reads [/s] |
| | | | RawDeviceWrites[/s] | Number of physical writes [/s] |
| | Free | 13 | MemoryFree[pages] | Average number of pages available to user processes |
| | | | SwapFree[blocks] | Disk blocks available for page swapping |
| | Kernel | 14 | LargePoolAllo[bytes] | Number of bytes allocated for requests for large amounts of memory |
| | | | LargePoolFails | Number of not satisfied requests for large amounts of memory |
| | | | LargePoolSize[bytes] | Number of bytes for large pool |
| | | | OversizedAllo[bytes] | Number of bytes allocated for oversize fail requests |
| | | | OversizedFails | Number of not satisfied oversize requests |
| | | | SmallPoolAllo[bytes] | Number of bytes allocated for requests for small amounts of memory |
| | | | SmallPoolFails | Number of not satisfied requests for small amounts of memory |
| | | | SmallPoolSize[bytes] | Number of bytes for small pool |
| | Pageln | 11 | PageAddrTrans[/s] | Address translation page faults [/s] |
| | | | PageInRequests[/s] | Page-in requests [/s] |
| | | | PageLockIO[/s] | Faults caused by software lock requests requiring physical IO [/s] |
| | | | PageProtErrors[/s] | Page faults from protection errors [/s] |

| | | | PageReclaims[/s] | Page reclaimings [/s] |
|-----|---------|----|---|---|
| | | | PagesPagedIn[/s] | Pages paged-in [/s] |
| | PageOut | 12 | PageOutRequests[/s] | Page-out requests [/s] |
| | | | PagesFreed[/s] | Pages placed on the free list by |
| | | | | page stealing daemon [/s] |
| | | | PagesPagedOut[/s] | Pages paged-out [/s] |
| | | | PagesScanned[/s] | Pages scanned by page |
| | | | | stealing daemon [/s] |
| | | | UFSInodesFreeList[%] | UFS inodes taken off the free list by iget [%] |
| | Swap | 5 | ProcessSwitches[/s] | Process switches [/s] |
| | • | | SwapInPages[/s] | Number of 512-byte units |
| | | | | transferred for swap-ins [/s] |
| | | | SwapInTransfers[/s] | Number of transfers for swap- ins [/s] |
| | | | SwapOutPages[/s] | Number of 512-byte units transferred for swap-outs [/s] |
| | | | SwapOutTransfers[/s] | Number of transfers for swap- outs [/s] |
| Net | TCP1 | 28 | DataInSequ[/s] *) | Number of bytes received in sequence [/s] |
| | | | PacketsOutAck[/s] *) | Number of ack-only packets sent [/s] |
| | | 1 | PacketsOut[/s] *) | Number of data packets sent [/s] |
| | | | PacketsRetrans[/s] *) | Number of data packets |
| | | | , | retransmitted [/s] |
| | | | RetransTimeOuts[/s] *) | Number of retransmit timeouts |
| | | | TotalDataOut[/s] *) | Total number of data bytes sent [/s] |
| | | | TotalPacketsIn[/s] *) | Total number of packets |
| | | | TotalPacketsOut[/s] *) | Total number of packets sent |
| | TCP1 | 30 | Dataln[bytes/s] **) | Total number of data bytes received [/s] |
| | | | DataOutRetr[%] **) | OutDataBytes retransmitted [%] |
| | | | DataOutRetr[bytes/s] **) | Total number of OutDataBytes |
| | | | DataOut[bytes/s] **) | Total number of bytes in data |
| | | | ListenDronsDuh[/s] **) | Number of dubious looking |
| | | | | listen drops from q0 [/s] |
| | | | ListenuropsQU[/s] **) | |
| | | | | [/s] |
| | | | ListenDrops[/s] **) | Number of connections dropped due to listen overflow [/s] |
| | | | OpensActive[/s] **) | Number of outgoing connections SYN-SENT [/s] |
| | | | OpensPassive[/s] **) | Number of incoming connections SYN-RCVD [/s] |
| | TCP2 | 31 | DataInDupl[%] **) | InDataBytes retransmitted [%] |
| | | | DataInDupl[bytes/s] **) | Total number of duplicate bytes received [/s] |
| | | 1 | FailedSessions[/s] **) | Number failed sessions [/s] |
| | | 1 | Resets[/s] **) | Number resets generated [/s] |
| | | | SegsIn[/s] **) | Number of segments in [/s] |
| | | | SegsOut[/s] **) | Number of segments out [/s] |
| | TCP2 | 33 | PacketsInAck[/s] *) | Number of rcvd ack packets [/s] |
| | | | PacketsInDup[/s] *) | Number of duplicate-only |

| | | | | packets received [/s] |
|----------------|--------------|----|--------------------------|--|
| | | | PacketsInOO[/s] *) | Number of out-of-order packets |
| | | | | received [/s] |
| | | | PacketsInPartDup[/s] *) | Number of packets with some duplicate data [/s] |
| | | | PacketsInProbe[/s] *) | Number of rcvd window probe |
| | | | PacketsInSequ[/s] *) | Number of packets received in |
| | TODO | 20 | A - 1 | sequence [/s] |
| | TCP3 | 32 | ACKSOUT[/S] | Total number of acks sent [/s] |
| | | | Retrans limeouts[/s] **) | timeouts [/s] |
| | | | SegsFastRetrans[/s] **) | Total number of segments sent due to fast retransmit [/s] |
| | | | SegsInAck[/s] **) | Total number of ack segments received [/s] |
| | | | SegsInDupl[/s] **) | Total number of complete |
| | | | | duplicate data segments |
| | | | SegsInPartDupl[/s] **) | Total number of partial duplicate |
| | | | SogePotrope[/c] **\ | Total number of sogments |
| | | | Seyskellans[/s]) | retransmitted [/s] |
| | | | SegsSackRetrans[/s] **) | Total number of retransmitted segments by SACK |
| | | | | retransmission [/s] |
| | | | WindowProbesIn[/s] **) | l otal number of zero window probes received [/s] |
| | | | WindowProbesOut[/s] **) | Total number of zero window probes sent [/s] |
| | UDPInOut | 29 | DatagramsIn[/s] | UDP datagrams delivered to |
| | | | DatagramsOut[/s] | UDP datagrams sent [/s] |
| NetInterface | Activity | 27 | CollisionsOut[%] | Collisions on output attempt [%] |
| | | | Collisions[/s] | Collisions [/s] for network |
| | | | | interface |
| | | | DataIn[bytes/s] | Bytes received [/s] for network interface |
| | | | DataOut[bytes/s] | Bytes transmitted [/s] for network interface |
| | | | ErrorsIn[/s] | Input errors [/s] for network interface |
| | | | ErrorsOut[/s] | Output errors [/s] for network interface |
| | | | PacketsIn[/s] | Input packets [/s] for network interface |
| | | | PacketsOut[/s] | Output packets [/s] for network interface |
| StorageAdapter | Data | 44 | DataR+W[kB/s] **) | Data read and written [kB/s] for storage adapter |
| | Reads+Writes | 43 | Read+WriteHits[%] 1)**) | Read and write hits [%] for storage adapter |
| | | | Read+WriteHits[/s] 1)**) | Number of read and write hits [/s] for storage adapter |
| | | | Reads[/s] **) | Number of reads [/s] for storage |
| | | | Writes[/s] **) | Number of writes [/s] for storage |
| StorageArray | Data | 36 | DataR+W[kB/s] **) | Data read and written [kB/s] for |
| | | | | storage array |

| | | | DataRead[kB/s] | **) | Data read [kB/s] for storage |
|---------------|--------------|------|--------------------|--------------|-----------------------------------|
| | | | | | array |
| | | | DataWritten[kB/s] | **) | Data written [kB/s] for storage |
| | | | | 4 / 44/ | array |
| | Reads | 34 | ReadHits[%] | <u>1)^^)</u> | Read hits [%] for storage array |
| | | | ReadHits[/s] | 1)^^) | Number of read hits [/s] for |
| | | | Deede[/e] | **\ | Storage array |
| | | | Reads[/s] |) | Number of reads [/s] for storage |
| | Writes | 35 | MritoHite[%] | 1)**) | Write hits [%] for storage array |
| | WIIIES | - 55 | WriteHite[/s] | <u> </u> | Number of write hits [/s] for |
| | | | | ')) | storage array |
| | | | Writes[/s] | **) | Number of writes [/s] for storage |
| | | | 111100[/0] | / | arrav |
| StorageDevice | Data | 39 | DataR+W[kB/s] | **) | Data read and written [kB/s] for |
| 5 | | | | , | storage device |
| | | | DataRead[kB/s] | **) | Data read [kB/s] for storage |
| | | | | , | device |
| | | | DataWritten[kB/s] | **) | Data written [kB/s] for storage |
| | | | | | device |
| | Reads | 37 | ReadHits[%] | **) | Read hits [%] for storage device |
| | | | ReadHits[/s] | **) | Number of read hits [/s] for |
| | | | | | storage device |
| | | | Reads[/s] | **) | Number of reads [/s] for storage |
| | | | | 4.4.1 | device |
| | Writes | 38 | WriteHits[%] | **) | Write hits [%] for storage device |
| | | | WriteHits[/s] | **) | Number of write hits [/s] for |
| | | | \//ritaa[/a] | **\ | Storage device |
| | | | vvnies[/s] |) | device |
| StorageDisk | Data | 12 | DataR+W[kB/s] | **) | Data read and written [kB/s] for |
| OlorageDisk | Data | 72 | |) | storage disk |
| | | | DataRead[kB/s] | 1)**) | Data read [kB/s] for storage disk |
| | | | DataWritten[kB/s] | 1)**) | Data written [kB/s] for storage |
| | | | | -, , | disk |
| | Reads | 40 | Reads[/s] | **) | Number of reads [/s] for storage |
| | | | | | disk |
| | Writes | 41 | Writes[/s] | **) | Number of writes [/s] for storage |
| | | | | | disk |
| System | FileAccesses | 7 | DirBlockReads[/s] | | Number of read S5 directory |
| | | | | | blocks [/s] |
| | | | lgetCalls[/s] | | Number of files located by inode |
| | | | | | entry [/s] |
| | | | NameiCalls[/s] | | Number of file system path |
| | Magagaga | 10 | MaaaagaOpa[/a] | | Searches [/s] |
| | Messages | 10 | messageOps[/s] | | |
| | | | SemanhoreOne[/s] | | [/s] Number of semanhore |
| | | | SemaphoreOps[/3] | | operations [/s] |
| | Properties | 47 | | (Hz1**) | CPU clock speed [MHz] |
| | | | NumberCPUs | **) | Number of CPUs |
| | | | TotalPhysMemory | MB1**) | Total physical memory [MB] |
| | SystemCalls | 6 | ExecCalls[/s] | / | Exec system calls [/s] |
| | | | ForkCalls[/s] | | Fork system calls [/s] |
| | 1 | | ReadCallsData[/s] | | Characters transferred by read() |
| | | | | | [/s] |
| | | | ReadCalls[/s] | | Read system calls [/s] |
| | | | SystemCalls[/s] | | All types of system calls [/s] |
| | | | WriteCallsData[/s] | | Characters transferred by write() |
| | | | | | [/s] |
| | | | WriteCalls[/s] | | Write system calls [/s] |

| | SystemTable | 9 | FileTabMaxEntries | | Max number of entries in file |
|---------------|----------------|----|----------------------|-----|--|
| | | | FileTabOver | | Overflows for file table |
| | | | FileTabUsedEntries | | Number of entries in file table |
| | | | InodeTabMaxEntries | | Max number of entries in inode table |
| | | | InodeTabOver | | Overflows for inode table |
| | | | InodeTabUsedEntries | 5 | Number of entries in inode table |
| | | | LockTabMaxEntries | | Max number of entries in lock table |
| | | | LockTabUsedEntries | | Number of entries in lock table |
| | | | ProcTabMaxEntries | | Max number of entries in process table |
| | | | ProcTabOver | | Overflows for process table |
| | | | ProcTabUsedEntries | | Number of entries in process table |
| | TTY | 8 | InputCharsCanon[/s] | | Input characters processed by canon [/s] |
| | | | InputChars[/s] | | Input characters [/s] |
| | | | ModemInterrupts[/s] | | Modem interrupts [/s] |
| | | | OutputChars[/s] | | Output characters [/s] |
| | | | RecInterrupts[/s] | | Receiver hardware interrupts [/s] |
| | | | TransmInterrupts[/s] | | Transmitter hardware interrupts [/s] |
| UFS | Activity | 15 | create[/s] | *) | Number of create operations [/s] |
| | | | getpage[/s] | *) | Number of getpage operations [/s] |
| | | | lookup[/s] | *) | Number of lookup operations [/s] |
| | | | open[/s] | *) | Number of open operations [/s] |
| | | | other[/s] | *) | Number of other operations [/s] |
| | | | putpage[/s] | *) | Number of putpage operations [/s] |
| | | | readdir[/s] | *) | Number of readdir operations [/s] |
| WorkloadClass | WorkloadClass1 | 23 | ChildSystemTime[%] | | Accumulated system time of exited child processes [%] for workload class |
| | | | ChildUserTime[%] | | Accumulated user time of exited child processes [%] for workload class |
| | | | SwapTransfers[/s] | **) | Number of swaps [/s] for workload class |
| | | | SystemTime[%] | | Time running in system mode [%] for workload class |
| | | | UserTime[%] | | Time running in user mode [%] for workload class |
| | WorkloadClass2 | 24 | BlocksRead[/s] | **) | Number of input blocks [/s] for workload class |
| | | | BlocksWritten[/s] | **) | Number of output blocks [/s] for workload class |
| | | | CharactersR+W[/s] | **) | Number of characters transferred by read and write calls [/s] for workload class |
| | | | LWP | **) | Number of lwp's for workload |
| | | | PageFaults[/s] | **) | Number of page faults [/s] for workload class |
| | | | ResidentSize[kB] | | Resident set size [kB] for workload class |

| | | VirtualSize[kB] | Virtual address space size [kB] for workload class |
|----------------|----|-------------------------|---|
| WorkloadClass3 | 25 | CPUTimePerSwitch[ms]** | Average CPU time consumed between each context switch [ms] for workload class |
| | | InvolContextSws[/s] **) | Number of involuntary context switches [/s] for workload class |
| | | ReceivedMessages[/s]**) | Number of received messages [/s] for workload class |
| | | SentMessages[/s] **) | Number of sent messages [/s] for workload class |
| | | SystemCalls[/s] **) | Number of system calls [/s] for workload class |
| | | VolContextSws[/s] **) | Number of voluntary context switches [/s] for workload class |

- *) not available on SOLARIS systems
 **) not available on ReliantUNIX systems
 1) not available for CLARiiON / FibreCAT

7.1.3 Linux

| Report Group | Report Name | R# | Meas. Variable | | Description |
|--------------|-----------------|----------|---------------------------|----|------------------------------------|
| CPU | Interrupts | 11 | Interrupt000[/s] | *) | Number of interrupts [/s] for |
| | | | | | processor |
| | | | Interrupt001[/s] | *) | Number of interrupts [/s] for |
| | | | | | processor |
| | | | Interrupt002[/s] | *) | Number of interrupts [/s] for |
| | | | | - | processor |
| | | | Interrupt003[/s] | *) | Number of interrupts [/s] for |
| | | | | | processor |
| | | | Interrupt004[/s] | *) | Number of interrupts [/s] for |
| | | | | | processor |
| | | | Interrupt005[/s] | *) | Number of interrupts [/s] for |
| | | | | | processor |
| | | | Interrupt006[/s] | *) | Number of interrupts [/s] for |
| | | | | | processor |
| | | | Interrupt007[/s] | *) | Number of interrupts [/s] for |
| | | | | | processor |
| | | | Interrupt008[/s] | *) | Number of interrupts [/s] for |
| | | | | | processor |
| | | | Interrupt009[/s] | *) | Number of interrupts [/s] for |
| | | | | | processor |
| | | | Interrupt010[/s] | *) | Number of interrupts [/s] for |
| | | | | | processor |
| | | | Interrupt011[/s] | *) | Number of interrupts [/s] for |
| | | | | | processor |
| | | | Interrupt012[/s] | *) | Number of interrupts [/s] for |
| | | | | | processor |
| | | | Interrupt013[/s] | *) | Number of interrupts [/s] for |
| | | | | | processor |
| | | | Interrupt014[/s] | *) | Number of interrupts [/s] for |
| | | | | | processor |
| | | | Interrupt015[/s] | *) | Number of interrupts [/s] for |
| | | | | | processor |
| | Time | 18 | Idle lime[%] | | CPU idle time [%] for CPU |
| | | | IdleWaitIOTime[%] | | CPU idle time during which the |
| | | | | | system had an outstanding disk |
| | | | | | I/O request [%] for CPU |
| | | | NICE I IME[%] | | CPU utilization at user level with |
| | | | Outstand Time a [0/1 | | nice priority [%] for CPU |
| | | | System i me[%] | | (kerpel) [9/1 for CDU |
| | | | LlearTime ^{[0/1} | | |
| | | | | | (application) [%] for CDU |
| | ContextSwitches | 2 | ContextSwitches[/s] | | Total number of context |
| | CONTEXCOMICHES | _ | | | switches [/s] |
| | Interrunte | 1 | Interrunte[/e] | | Total number of interrupte |
| | Interrupts | 4 | interrupts[/s] | | received [/s] |
| | | 16 | | | System load average for the last |
| | Sucuo | 10 | Loudinerayor | | minute |
| | | | LoadAverage15 | | System load average for the |
| | | | | | past 15 minutes |
| | | | LoadAverage5 | | System load average for the |
| | | | | | past 5 minutes |
| | | | ProcessListLenath | | Number of processes in the |
| | | | | | process list |
| | | | QueueLenath | | Number of processes waiting for |
| | | | | | run time |
| | Time | 3 | IdleTime[%] | | CPU idle time [%] |
| | - | | IdleWaitIOTime[%] | | CPU idle time during which the |

| | | | | | system had an outstanding disk |
|--------------|----------|----|----------------------|----|--|
| | | | | | I/O request [%] |
| | | | NiceTime[%] | | CPU utilization at user level with |
| | _ | | | | nice priority [%] |
| | | | SystemTime[%] | | CPU utilization at system level (kernel) [%] |
| | | | UserTime[%] | | CPU utilization at user level |
| Device | Activity | 17 | Blocks[/s] | *) | Number of blocks transferred |
| | | | CPUUtilization[%] | *) | CPU utilization during I/O |
| | | | QueueLength | *) | Average queue length of the |
| | | | Reads+Writes[/s] | *) | Number of transfers issued for |
| | | | RequestSize[Sectors] | *) | Average size (in sectors) of the |
| | | | SectorsRead[/s] | *) | Number of sectors read from |
| | | | SectorsWritten[/s] | *) | Number of sectors write to device [/s] |
| | | | Sectors[/s] | *) | Number of sectors transferred from or to [/s] for device |
| | | | ServiceTime[ms/Tr] | *) | Average service time for I/O requests [ms] |
| | | | Time[ms/Tr] | *) | Average time for I/O requests [ms] |
| Device-Total | IO | 7 | BlocksRead[/s] | | Total amount of data read from drive in blocks [/s] |
| | | | BlocksWritten[/s] | | Total amount of data written to drive in blocks [/s] |
| | | | Reads+Writes[/s] | | Total number of transfers to physical disk [/s] |
| | | | Reads[/s] | | Total number of read requests to physical disk [/s] |
| | | | Writes[/s] | | Total number of write requests to physical disk [/s] |
| Memory | Pages | 8 | PagesCached[/s] | | Number of additionnal memory pages cached by the system [/s] |
| | | | PagesForBuffer[/s] | | Number of additionnal memory pages used as buffers by the system [/s] |
| | | | PagesFreed[/s] | | Number of memory pages freed by the system [/s] |
| | | | PagesShared[/s] | | Number of additionnal memory pages shared by the system [/s] |
| | Paging | 5 | BlocksPagedIn[/s] | | Total number of blocks paged in from disk [/s] |
| | | | BlocksPagedOut[/s] | | Total number of blocks paged out to disk [/s] |
| | | | MajorPageFaults[/s] | | Number of major faults made by the system [/s], which have required loading a memory page from disk |
| | | | PageFaults[/s] | | Number of page faults (major + minor) made by the system [/s] |
| | | | PagesActive | | Number of active (recently touched) pages in memory |
| | | | PagesInactiveClean | | Number of inactive clean (not modified) pages in memory |
| | | | PagesInactiveDirty | | Number of inactive dirty |

| | | | | (modified or potentially modified) |
|-----|-------------|----|---------------------|--|
| | | | | pages in memory |
| | | | PagesInactiveStolen | Number of 'stolen' pages in |
| | | | | order to satisfy memory demand |
| | | | | |
| | Swapping | 6 | SwapInPages[/s] | I otal number of swap pages brought in [/s] |
| | | | SwapOutPages[/s] | Total number of swap pages |
| | | | | brought out [/s] |
| | Utilization | 10 | MemoryForBuffer[kB] | Amount of memory used as buffers by the kernel [kB] |
| | | | MemoryForCache[kB] | Amount of memory used to |
| | | | MemoryFree[kB] | Amount of free memory |
| | | - | Momon Sharod[kB] | Amount of momony abarad by |
| | | | wentoryShared[kb] | the system [kB] |
| | | | MemoryUsed[%] | Used memory [%] |
| | | | MemoryUsed[kB] | Amount of used memory [kB] |
| | | | SwapCached[kB] | Amount of cached swap |
| | | | | memory [kB] |
| | | | SwapFree[kB] | Amount of free swap space [kB] |
| | | | SwapUsed[%] | Used swap space [%] |
| | | | SwapUsed[kB] | Amount of used swap space |
| | | | | [kB] |
| Net | NFSClient | 19 | RPCsAccess[/s] | Number of access RPC calls [/s] |
| | | | RPCsGetAttr[/s] | Number of getattr RPC calls [/s] |
| | | | RPCsRead[/s] | Number of read RPC calls [/s] |
| | | | RPCsRetrans[/s] | Number of retransmitted RPC |
| | | | | requests [/s] |
| | | | RPCsWrite[/s] | Number of write RPC calls [/s] |
| | | | RPCs[/s] | Number of RPC requests [/s] |
| | NFSServer | 20 | PacketsIn[/s] | Number of network packets receive [/s] |
| | | | PacketsTCP[/s] | Number of TCP packets receive |
| | | | PacketsUDP[/s] | Number of UDP packets receive |
| | | | RPCsInAccess[/s] | Number of access RPC calls |
| | | | RPCsInError[/s] | Number of bad RPC requests |
| | | | RPCsInGetAttr[/s] | Number of getattr RPC calls |
| | | | RPCsInRead[/s] | Number of read RPC calls |
| | - | | | |
| | | | KPUSINVVIITE[/S] | received [/s] |
| | | | RPCsIn[/s] | Number of RPC requests receive [/s] |
| | | | ReplyCacheHits[/s] | Number of reply cache hits [/s] |
| | | | ReplyCacheMiss[/s] | Number of reply cache misses |
| | Socket | 15 | IPFragments | Number of IP fragments |
| | | | | currently in use |
| | - | | SOCKEIS | I otal number of used sockets |
| | | | SocketsRaw | Number of KAW sockets |
| | | | SocketsTCD | Number of TCP sockets |
| | | | | currently in use |
| | | | SocketsUDP | Number of UDP sockets |
| | | | | |

| | | | | currently in use |
|--------------|----------------|----|----------------------|---|
| NetInterface | Activity | 13 | Dataln[bytes/s] | Total number of bytes received [/s] for network interface |
| | | | DataOut[bytes/s] | Total number of bytes transmitted [/s] for network interface |
| | | | PacketsComprIn[/s] | Number of compressed packets received (for cslip etc.) [/s] for network interface |
| | | | PacketsComprOut[/s] | Number of compressed packets transmitted [/s] for network interface |
| | | | PacketsIn[/s] | Total number of packets received [/s] for network interface |
| | | | PacketsMulcastIn[/s] | Number of multicast packets received [/s] for network interface |
| | | | PacketsOut[/s] | Total number of packets transmitted [/s] for network interface |
| | Errors | 14 | CollisionsOut[/s] | Number of collisions while transmitting packets [/s] for network interface |
| | | | PacketInAlignErr[/s] | Number of frame alignment errors on received packets [/s] for network interface |
| | | | PacketInErr[/s] | Total number of bad packets [/s] for network interface |
| | | | PacketInFIFOErr[/s] | Number of FIFO overrun errors on received packets [/s] for network interface |
| | | | PacketOutCarrErr[/s] | Number of carrier-errors while transmitting packets [/s] for network interface |
| | | | PacketOutErr[/s] | Total number of errors while transmitting packets [/s] for network interface |
| | | | PacketOutFIFOErr[/s] | Number of FIFO overrun errors on transmitted packets [/s] for network interface |
| | | | PacketsInDrop[/s] | Number of received packets dropped due to buffer shortage [/s] for network interface |
| | | | PacketsOutDrop[/s] | Number of transmitted packets dropped due to buffer shortage [/s] for network interface |
| System | KernelTables | 12 | DiskQuotaEntrs | Number of allocated disk quota entries |
| | | Ì | DiskQuotaEntrs[%] | Allocated disk quota entries [%] |
| | | | QueuedRTSignals | Number of queued RT signals |
| | | | QueuedRTSignals[%] | Queued RT signals [%] |
| | | | SuperBlockHandIrs | Number of super block handlers allocated by the kernel |
| | | | SuperBlockHandlrs[%] | Allocated super block handlers [%] |
| | | | UnusedDirCacheEntrs | Number of unused cache entries in the directory cache |
| | | Ĺ | UsedFileHandles | Number of used file handles |
| | | | UsedFileHandles[%] | Used file handles [%] |
| | | | UsedInodeHandIrs | Number of used inode handlers |
| | ProcessCreates | 1 | ProcessCreates[/s] | Total number of processes |

| | | | | created [/s] |
|---------------|-----------------|----|---|-----------------------------------|
| | Properties | 27 | CPUClockSpeed[MHz] | CPU clock speed [MHz] |
| | | | NumberCPUs | Number of CPUs |
| | | | TotalPhysMemory[MB] | Total physical memory [MB] |
| | TTY | 9 | TTYRecInterr[/s] | Number of receive interrupts for |
| | | | | current serial line [/s] for TTY |
| | | | TTYTransInterr[/s] | Number of transmit interrupts for |
| | | | | current serial line [/s] for TTY |
| WorkloadClass | WorkloadClass1 | 24 | ChildSystemTime[%] | Accumulated system time of |
| | | | | exited child processes [%] for |
| | | | | workload class |
| | | | ChildUserTime[%] | Accumulated user time of exited |
| | | | | child processes [%] for workload |
| | | | | class |
| | | | MemoryUsage[%] | Currently used share of physical |
| | | | Outstand Time a 10/1 | memory [%] for workload class |
| | | | System I Ime[%] | I lime running in system mode |
| | | | | |
| | | | Oser Time[%] | for workload class |
| | Workload Class? | 25 | ChildMaiDaEaulte[/s] | Number of major page faults of |
| | WUINIOduCiaSSZ | 25 | Childiviajr gradits[/s] | evited child processes [/s] for |
| | | | | workload class |
| | | | ChildMinPgFaults[/s] | Number of minor page faults of |
| | | | | exited child processes [/s] for |
| | | | | workload class |
| | | | LWP | Number lwps for workload class |
| | | | MajPageFaults[/s] | Number of major page faults [/s] |
| | | | , | for workload class |
| | | | MemorySize[kB] | Memory size [kB] for workload |
| | | | | class |
| | | | MinPageFaults[/s] | Number of minor page faults [/s] |
| | | | | for workload class |
| | WorkloadClass3 | 26 | CodeSize[kB] | Code size [kB] for workload |
| | | | | class |
| | | | DataSize[kB] | Data size [kB] for workload class |
| | | | ResidentSize[kB] | Resident size [kB] for workload |
| | | | | class |
| | | | SharedMemory[kB] | Shared memory [kB] for |
| | | | | workload class |
| | | | SwappedOutiviemory[kB] | Swapped out portion [KB] of |
| | | | | virtual memory image for |
| | | | VirtualMaman (I/D) | Virtual mamary [k] used by |
| | | | | workload class |
| 1 | 1 | 1 | | wunnuau ulass |

*) not available on s390 systems

7.1.4 Windows

| Report Group | Report Name | R# | Measurement Variable | Description |
|--------------|-------------|-----|----------------------|---|
| CPU | DPC | 45 | CurrDPCRate | Current number of deferred procedure calls (DPCs) added to the processor's DPC queue for CPU |
| | | | DPCsQd[/s] | Number of deferred procedure calls (DPCs) added to the processor's DPC queue [/s] for CPU |
| | Interrupts | 44 | Interrupts[/s] | Number of hardware interrupts [/s] for CPU |
| | Time | 43 | DPCTime[%] | Processor time receiving and servicing deferred procedure calls (DPCs) [%] for CPU |
| | | | IdleTime[%] **) | Processor idle time [%] for CPU |
| | | | InterruptTime[%] | Processor time receiving and servicing hardware interrupts [%] for CPU |
| | | | PrivilegedTime[%] | Processor time privileged mode [%] for CPU |
| | | | TotalTime[%] | Processor time executing a non- Idle thread [%] for CPU |
| | | | UserTime[%] | Processor time user mode [%] for CPU |
| CPU-Total | Incidents | 103 | DPCsQd[/s] | Number of deferred procedure calls (DPCs) added to the processor's DPC queue [/s] |
| | | | Interrupts[/s] | Number of hardware interrupts [/s] |
| | Time | 102 | IdleTime[%] **) | Processor idle time [%] |
| | | | InterruptTime[%] | Processor time receiving and servicing hardware interrupts [%] |
| | | | PrivilegedTime[%] | Processor time privileged mode [%] |
| | | | TotalTime[%] | Processor time executing a non- Idle thread [%] |
| | | | UserTime[%] | Processor time user mode [%] |
| Cache | CopyReads | 40 | AsyncCopyReads[/s] | Number of asynch. reads from file system cache involving a copy from cache to appl. buffer [/s] |
| | | | CopyReads[/s] | Number of reads from file system cache involving a copy from cache to appl. buffer [/s] |
| | | | SyncCopyReads[/s] | Number of synch. reads from file system cache involving a copy from cache to appl. buffer [/s] |
| | DataMapping | 37 | AsyncDataMaps[/s] | Number of pages mapped asynch. into file system cache to read the page [/s] |
| | | | DataMaps[/s] | Number of pages mapped into file system cache to read the page [/s] |
| | | | SyncDataMaps[/s] | Number of pages mapped synch. into file system cache to read the page [/s] |
| | Hits | 38 | CopyReadHits[%] | Cache copy read hit requests [%] |
| | | | DataMapHits[%] | Mapped pages in file system cache without retrieving a page from the disk [%] |
| | | | MDLReadHits[%] | Memory Descriptor List (MDL) read hit requests to file system cache [%] |
| | | | PinReadHits[%] | Pin read requests that hit file |

| | | | | system cache [%] |
|-------------|---------------|----|------------------------|---------------------------------------|
| | MDLReads | 41 | AsyncMDLReads[/s] | Number of asynch. reads from file |
| | | | | system cache that use a Memory |
| | | | | Descriptor List (MDL) [/s] |
| | | | MDLReads[/s] | Number of reads from file system |
| | | | | cache that use a Memory |
| | | | | Descriptor List (MDL) [/s] |
| | | | SyncMDLReads[/s] | Number of synch. reads from file |
| | | | | system cache that use a Memory |
| | | | | Descriptor List (MDL) [/s] |
| | Miscellaneous | 42 | AsyncFastReads[/s] | Number of asynch. fast reads from |
| | | | | file system cache retrieving the |
| | | | | data directly from cache [/s] |
| | | | DataFlushPages[/s] | Number of pages the file system |
| | | | | Cache has hushed to disk [/s] |
| | | | DataFlushes[/s] | Number of operations the file |
| | | | | system cache has hushed its |
| | | | | Number of attempts by ADI calls to |
| | | | FasikeaunoiFoss[/s] | number of allempts by AFT calls to |
| | | | | invoking the file system [/s] |
| | | | FastReadResMiss[/s] | Number of cache misses |
| | | | | necessitated by lack of available |
| | | | | resources to satisfy the request [/s] |
| | | | FastReads[/s] | Number of fast reads from file |
| | | | | system cache retrieving the data |
| | | | | directly from cache [/s] |
| | | | LazyWriteFlushes[/s] | Number of writes to disk from Lazy |
| | | | | Writer thread [/s] |
| | | | LazyWritePages[/s] | Number of pages written to disk |
| | | | | from Lazy Writer thread [/s] |
| | | | ReadAheads[/s] | Number of reads from file system |
| | | | | cache in which the cache detects |
| | | | SupeFeetDeede[/e] | Sequential access to a file [/S] |
| | | | SyncrastReaus[/s] | file system cache retrieving the |
| | | | | data directly from cache [/s] |
| | Pins | 39 | AsyncPinReads[/s] | Number of asynch reads into file |
| | | 00 | | system cache preparatory to writing |
| | | | | the data back to disk [/s] |
| | | | DataMapPins[/s] | Number of pages mapped into file |
| | | | | system cache that resulted in |
| | | | | pinning a page in main memory [/s] |
| | | | PinReads[/s] | Number of reads into file system |
| | | | | cache preparatory to writing the |
| | | | | data back to disk [/s] |
| | | | SyncPinReads[/s] | Number of synch. reads into file |
| | | | | system cache preparatory to writing |
| | | | | the data back to disk [/s] |
| LogicalDisk | Activity | 1 | BusyRead[%] *) | Time busy for read requests [%] for |
| | | | $D_{1} = \sqrt{1 + 1}$ | |
| | | | Busywhie[%] ") | Inne busy for write requests [%] for |
| <u> </u> | | | Busv[%] *) | Time busy for read and write |
| | | | | requests [%] for logical partition |
| | | | Idle[%] | Time idle [%] for logical partition |
| | Data | 4 | DataRateRead[kB/s] | Transferred data for read |
| | | | | operations [kB/s] for logical |
| | | | | partition |
| | | | DataRateWrite[kB/s] | Transferred data for write |
| | | | | operations [kB/s] for logical |
| | | | | partition |

| | | | DataRate[kB/s] | Transferred data for read and write operations [kB/s] for logical partition |
|-------------------|--------------|----|----------------------|---|
| | | | DataTransferR[kB/Rd] | Transferred data per read operation [kB/Read] for logical partition |
| | | | DataTransferW[kB/Wr] | Transferred data per write operation [kB/Write] for logical partition |
| | | | DataTransfer[kB/Tr] | Transferred data per read and write operation [kB/Transfer] for logical partition |
| | FreeSpace | 5 | FreeSpace[%] | Current free space available [%] for logical partition |
| | | | FreeSpace[GB] | Current free space available [GB] for logical partition |
| | IOSplits | 7 | SplitIOs[/s] | Number IOs splitted into multiple IOs [/s] for logical partition |
| | Queue | 6 | AvgQLen | Average number of queued read and write requests for logical partition |
| | | | AvgReadQLen | Average number of queued read requests for logical partition |
| | | | AvgWriteQLen | Average number of queued write requests for logical partition |
| | | | CurrQLen | Current number of requests outstanding for logical partition |
| | TransferTime | 2 | TimeRead[ms/Read] | Time per read transfer [ms/Read] |
| | | | TimeWrite[ms/Write] | Time per write transfer [ms/Write] |
| | | | Time[ms/Tr] | Time per read and write transfer |
| | Transfers | 3 | TransfersRead[/s] | Number of read operations [/s] for logical partition |
| | | | TransfersWrite[/s] | Number of write operations [/s] for logical partition |
| | | | Transfers[/s] | Number of read and write |
| LogicalDisk-Total | BusyTime | 90 | BusyRead[%] *) | Time busy for read requests [%] |
| | | | BusyWrite[%] *) | Time busy for write requests [%] |
| | | | Busy[%] *) | Time busy for read and write |
| | | | Idle[%] | Time idle [%] |
| | DataRate | 93 | DataRateRead[kB/s] | Transferred data for read |
| _ | | | DataRateWrite[kB/s] | Transferred data for write |
| | | | DataRate[kB/s] | Transferred data for read and write operations [kB/s] |
| | DataTransfer | 94 | DataTransferR[kB/Rd] | Transferred data per read |
| | | | DataTransferW[kB/Wr] | Transferred data per write |
| | | | DataTransfer[kB/Tr] | Transferred data per read and write |
| | Queue | 95 | AvgQLen | Average number of queued read and write requests |
| | | | AvgReadQLen | Average number of queued read requests |
| | | | AvgWriteQLen | Average number of queued write requests |

| | TransferTime | 91 | TimeRead[ms/Read] | Time per read transfer [ms/Read] |
|--------|---------------|----|----------------------|---|
| | | | TimeWrite[ms/Write] | Time per write transfer [ms/Write] |
| | | | Time[ms/Tr] | Time per read and write transfer |
| | | | | [ms/Transfer] |
| | Transfers | 92 | TransfersRead[/s] | Number of read operations [/s] |
| | | | TransfersWrite[/s] | Number of write operations [/s] |
| | | | Transfers[/s] | Number of read and write |
| | | | | operations [/s] |
| Memory | MemoryAmount | 48 | AvailPhysMem[MB] | Current amount of physical memory available to processes [MB] |
| | | | CommitLimit[MB] | Current amount of virtual memory |
| | | | CommittedData[MB] | Current amount of committed |
| | Miscellaneous | 51 | CommittedBytesUse[%] | Current amount of committed |
| | | | FreeSysPagTableEntr | Current number of unused page |
| | | _ | | table entries |
| | | | SystemCodeTotal[MB] | System code in virtual memory [MB] |
| | | | SystemDrvTotal[MB] | Current size of pageable virtual memory being used by device drivers [MB] |
| | PageFaults | 47 | CacheFaults[/s] | Number of faults which occur when a page must be retrieved from memory or disk [/s] |
| | | | DemandZeroFaults[/s] | Number of page faults that require a zeroed page to satisfy the fault [/s] |
| | | | PageFaults[/s] | Number of page faults [/s] |
| | | | TransPagesRePurp[/s] | Number of transition cache pages |
| | | | TransitionFaults[/s] | Number of page faults resolved by |
| | | | WriteCopies[/s] | Number of page faults caused by |
| | | | | attempts to write satisfied by coping the page in memory [/s] |
| | Paging | 49 | PageReads[/s] | Number of times the disk was read |
| | | | PageWrites[/s] | Number of page write operations to |
| | | | | disk to free up space in physical memory [/s] |
| | | | PagesInput[/s] | Number of pages read from disk to resolve hard page faults [/s] |
| | | | PagesOutput[/s] | Number of pages written to disk to free up space in physical memory |
| | | | Pages[/s] | Number of pages read from or written to disk to resolve hard page faults [/s] |
| | Pool | 50 | PoolNonpagAllocs[/s] | Current number of calls to allocate space in the nonpaged pool [/s] |
| | | | PoolNonpgData[MB] | Current data in the nonpaged pool |
| | | | PoolPagedAllocs[/s] | Current number of calls to allocate |
| | | | PoolPagedData[MB] | Current data in the paged pool |
| | Resident | 52 | CacheData[MB] | (pageable memory) [MB] Current cache resident memory [MB] |
| | | | PoolPagedResd[MB] | Current size of paged pool [MB] |

| | | | SystemCacheResd[MB] | Current size of pageable operating system code in the file system cache IMB1 |
|--------------|-------------------|----|----------------------|--|
| | | | SystemCodeResd[MB] | Current size of operating system code that can be written to disk [MB] |
| | | | SystemDrvResd[MB] | Current size of pageable physical memory being used by device drivers [MB] |
| NetInterface | Bandwidth | 81 | CurrBandwdth[Mbit/s] | Current interface bandwidth (Mbit/s) for network interface |
| | CurrOutputQLen | 84 | CurrOutputQLen | Current length of the output packet queue (packets) for network interface |
| | Data | 80 | RecData[kB/s] | Data received (including framing characters) [kB/s] for network interface |
| | | | RecPackets[/s] | Number of packets received [/s] for network interface |
| | | | SentData[kB/s] | Data sent (including framing characters) [kB/s] for network interface |
| | | | SentPackets[/s] | Number of packets sent [/s] for network interface |
| | | | TotalData[kB/s] | Data sent and received (including framing characters) [kB/s] for network interface |
| | | | TotalPackets[/s] | Number of packets sent and received [/s] for network interface |
| | HighLayerProtocol | 82 | RecPacketsNonUni[/s] | Number of received non-unicast packets [/s] for network interface |
| | | | RecPacketsUni[/s] | Number of received unicast packets [/s] for network interface |
| | | | SentPacketsNoUni[/s] | Number of requests to sent packets to non-unicast addresses [/s] for network interface |
| | | | SentPacketsUni[/s] | Number of requests to sent packets to unicast addresses [/s] for network interface |
| | PacketsDiscarded | 83 | PacketsOutbndDiscrd | Total number of outbound packets without errors discarded for network interface |
| | | | PacketsOutbndErrors | Total number of outbound packets with errors discarded for network interface |
| | | | RecPacketsDiscrd[/s] | Number of inbound packets without errors discarded [/s] for network interface |
| | | | RecPacketsErrors | Total number of inbound packets with errors discarded for network interface |
| | | | RecPacketsUnknown | Total number of inbound packets with unknown protocol discarded for network interface |
| Objects | Global | 53 | Events | Current number of events |
| | | | Mutexes | Current number of mutexes |
| | | | Processes | Current number of processes |
| | | | Sections | Current number of sections |
| | | | Semaphores | Current number of semaphores |
| DagingFile | | E1 | | Current usage of the Dage File 19/1 |
| FayingFile | Usaye | 54 | 03aye[/0] | for paging file |

| PhysicalDisk | Activity | 8 | BusyRead[%] *) | Time busy for read requests [%] for disk drive |
|--------------------|--------------|-----|----------------------|--|
| | | | BusyWrite[%] *) | Time busy for write requests [%] for disk drive |
| | | | Busy[%] *) | Time busy for read and write requests [%] for disk drive |
| | | | Idle[%] | Time idle [%] for disk drive |
| | Data | 11 | DataRateRead[kB/s] | Transferred data for read |
| | | | | operations [kB/s] for disk drive |
| | | | DataRateWrite[kB/s] | Transferred data for write operations [kB/s] for disk drive |
| | | | DataRate[kB/s] | Transferred data for read and write operations [kB/s] for disk drive |
| | | | DataTransferR[kB/Rd] | Transferred data per read operation [kB/Read] for disk drive |
| | | | DataTransferW[kB/Wr] | Transferred data per write operation [kB/Write] for disk drive |
| | | | DataTransfer[kB/Tr] | Transferred data per read and write operation [kB/Transfer] for disk drive |
| | IOSplits | 13 | SplitIOs[/s] | Number IOs splitted into multiple IOs [/s] for disk drive |
| | Queue | 12 | AvgQLen | Average number of queued read and write requests for disk drive |
| | | | AvgReadQLen | Average number of queued read requests for disk drive |
| | | | AvgWriteQLen | Average number of queued write requests for disk drive |
| | | | CurrQLen | Current number of requests outstanding for disk drive |
| | TransferTime | 9 | TimeRead[ms/Read] | Time per read transfer [ms/Read] for disk drive |
| | | | TimeWrite[ms/Write] | Time per write transfer [ms/Write] for disk drive |
| | | | Time[ms/Tr] | Time per read and write transfer [ms/Transfer] for disk drive |
| | Transfers | 10 | TransfersRead[/s] | Number of read operations [/s] for disk drive |
| | | | TransfersWrite[/s] | Number of write operations [/s] for disk drive |
| | | | Transfers[/s] | Number of read and write operations [/s] for disk drive |
| PhysicalDisk-Total | BusyTime | 96 | BusyRead[%] *) | Time busy for read requests [%] |
| | | | BusyWrite[%] *) | Time busy for write requests [%] |
| | | | Busy[%] *) | Time busy for read and write requests [%] |
| | | | Idle[%] | Time idle [%] |
| | DataRate | 99 | DataRateRead[kB/s] | Transferred data for read operations [kB/s] |
| | | | DataRateWrite[kB/s] | Transferred data for write operations [kB/s] |
| | | | DataRate[kB/s] | Transferred data for read and write operations [kB/s] |
| | DataTransfer | 100 | DataTransferR[kB/Rd] | Transferred data per read operation [kB/Read] |
| | | | DataTransferW[kB/Wr] | Transferred data per write operation [kB/Write] |
| | | | DataTransfer[kB/Tr] | Transferred data per read and write operation [kB/Transfer] |
| | Queue | 101 | AvgQLen | Average number of queued read and write requests |

| | | | AvgReadQLen | Average number of queued read requests |
|------------|------------------|----|----------------------|--|
| | | | AvgWriteQLen | Average number of queued write requests |
| | TransferTime | 97 | TimeRead[ms/Read] | Time per read transfer [ms/Read] |
| | | | Time[ms/Tr] | Time per read and write transfer |
| | Transfers | 98 | TransfersRead[/s] | Number of read operations [/s] |
| | | | TransfersWrite[/s] | Number of write operations [/s] |
| | | | Transfers[/s] | Number of read and write operations [/s] |
| PrintQueue | Calls | 79 | AddNetwPrinterCalls | Total number of calls from other print servers since last restart for print queue |
| | | | EnumNetwPrinterCalls | Total number of calls from browse clients since last restart for print queue |
| | Data | 75 | PrintedData[kB/s] | Data printed [kB/s] for print queue |
| | | | TotalPagesPrinted | Total number of pages printed through GDI since the last restart for print queue |
| | Errors | 78 | JobErrors | Total number of job errors since last restart for print queue |
| | | | NotReadyErrors | Total number of printer not ready errors since the last restart for print queue |
| | | | OutofPaperErrors | Total number of out of paper errors since the last restart for print queue |
| | Queue | 76 | CurrJobs | Current number of jobs for print queue |
| | | | CurrJobsSpooling | Current number of spooling jobs for print queue |
| | References | 77 | CurrReferences | Current number of references (open handles) for print queue |
| | TotalJobsPrinted | 74 | TotalJobsPrinted | Total number of jobs printed since the last restart for print queue |
| Redirector | Buffer | 34 | ReadPacketsSmall[/s] | Number of read operations with less than 1/4 of the servers negotiated buffer size [/s] |
| | | | ReadsLarge[/s] | Number of read operations with over 2 times the server's negotiated buffer size [/s] |
| | | | WritePacketsSmal[/s] | Number of write operations with less than 1/4 of the servers negotiated buffer size [/s] |
| | | | WritesLarge[/s] | Number of write operations with over 2 times the server's negotiated buffer size [/s] |
| | Cache | 32 | ReadCache[kB/s] | Data read by accessing file system cache (hits and non-hits) [kB/s] |
| | | | WriteCache[kB/s] | Data written to file system cache [kB/s] |
| | Connections | 36 | ConnectsCore | Total number of connections to servers running the original MS-Net SMB protocol |
| | | | ConnectsLanManager20 | Total number of connections to LAN Manager 2.0 servers |
| | | | ConnectsLanManager21 | Total number of connections to LAN Manager 2.1 servers |
| | | | ConnectsWindowsNT | Total number of connections to Windows NT computers |

| | | | ServerDisconnects | Total number of disconnects |
|----------|------------------|----|----------------------|--------------------------------------|
| | | | ServerReconnects | Total number of reconnects to a |
| | | | | server to complete a new active |
| | | | | request |
| | Data | 28 | ReadNetwork[kB/s] | Data read across the network |
| | Data | -0 | | [kB/s] |
| | | | ReadNonPaging[kB/s] | Data read in response to normal |
| | | | | file requests [kB/s] |
| | | | RecData[kB/s] | Data received from the network |
| | | | 1.0000414[1.070] | [kB/s] |
| | | | SentData[kB/s] | Data transmitted to the network |
| | | | Compara[hb/o] | [kB/s] |
| | | | TotalData[kB/s] | Data processed (application/file |
| | | | i otal Data[i,D, o] | data protocol information) [kB/s] |
| | | | WriteNetwork[kB/s] | Data written across the network |
| | | | White Network [RE/3] | |
| | | | WriteNonPaging[kB/s] | Data written in response to normal |
| | | | | file outputs [kB/s] |
| | FileOperations | 29 | ReadFileOns[/s] | Number of file read operations [/s] |
| | | 20 | | Number of file data operations [/s] |
| | | | WriteFileOne[/s] | Number of file write operations [/s] |
| | Miscellaneous | 35 | CurrCommande | Current number of requests |
| | MISCENALIEUUS | 55 | Guirooninianus | queued for service |
| | | | NotwErroro[/c] | Number of serious uperpected |
| | | | Netwenois[/s] | errors indicating serious |
| | | | | communication difficulties [/s] |
| | | | PoodeDonied[/e] | Number of depied raw read |
| | | | ReadSDeffied[/S] | requests [/s] |
| | | | SonverSessions | Total number of security objects |
| | | | ServerSessions | managed |
| | | | SonverSessionsHung | Total number of active accelena |
| | | | ServerSessionshung | timed out due to a lack of response |
| | | | Writes Denied[/s] | Number of depied raw write |
| | | | whitesDeffied[/s] | requests [/s] |
| | Packata | 20 | PoodPockote[/e] | Number of read packets placed on |
| | r ackels | 50 | ReadFackets[/S] | the network [/s] |
| | | | PocPackots[/s] | Number of packets (SMBs) |
| | | | INECF ackets[/S] | recieved from the network [/s] |
| | | | TotalPackets[/s] | Number of data packets processed |
| | | | | |
| | | | TransPackets[/s] | Number of packets (SMBs) sent to |
| | | | | the network [/s] |
| | | | WritePackets[/s] | Number of write packets sent to the |
| | | | | network [/s] |
| <u> </u> | Paging | 31 | ReadPaging[kB/s] | Data read in response to page |
| | r aging | 01 | rteadi aging[tb/s] | faults [kB/s] |
| <u> </u> | | | WritePaging[kB/s] | Data written changed in pages |
| | | | | being used by applications [kB/s] |
| <u> </u> | RandomOperations | 33 | ReadOpsRandom[/s] | Number of non sequential read |
| | | | | operations [/s] |
| | | | WriteOpsRandom[/s] | Number of non sequential write |
| | | | | operations [/s] |
| Server | Errors | 16 | ErrorsAccPermissions | Total number of times opens on |
| | | | | behalf of clients have failed with |
| | | | | STATUS ACCESS DENIED |
| | | | ErrorsGrantedAcc | Total number of times accesses to |
| | | | | files opened successfully were |
| | | | | denied |
| | | | ErrorsLogon | Total number of failed logon |
| | | | | attempts |
| | | | ErrorsSystem | Total number of times an internal |

| | | | | server error was detected |
|-----------------|----------------|----|----------------------|---|
| | File | 18 | FileDirSearches | Current number of searches for |
| | | | | files active |
| | | | FilesOpen | Current number of files opened |
| | | | FilesOpened I otal | I otal number of successful open attempts performed of behalf of clients |
| | Miscellaneous | 17 | BlockingReqsRejected | Total number of times the server |
| | | | ContextBlocksQd[/s] | Number of placed work context |
| | | | | blocks on FSP queue to await server action [/s] |
| | | | LogonTotal | Total number of logons since last boot |
| | | | Logon[/s] | Number of all logons [/s] |
| | | | WorkItemShortages | Total number of times STATUS_DATA_NOT_ACCEPTED was returned at receive indication time |
| | NetworkData | 14 | RecData[kB/s] | Data received from network [kB/s] |
| | | | SentData[kB/s] | Data sent to network [kB/s] |
| | | | TotalData[kB/s] | Data sent to and received from network [kB/s] |
| | Pool | 19 | PoolNonpagedFailures | Total number of times allocations from nonpaged pool have failed |
| | | | PoolNonpgData[MB] | Current used non-pageable memory [MB] |
| | | | PoolPagedData[MB] | Current used pageable memory [MB] |
| | | | PoolPagedFailures | Total number of times allocations from paged pool have failed |
| | Sessions | 15 | ServerSessions | Current number of sessions active |
| | | | SessionsErroredOut | Total number of sessions closed |
| | | | | autodisconnect timeout |
| | | | SessionsForcedOff | Total number of sessions forced to |
| | | | | logoff |
| | | | SessionsLoggedOff | Total number of sessions |
| | | | | terminated normally |
| | | | Sessions limedOut | due to idle time exceeding the |
| ServerWorkQueue | Clients | 26 | CurrClients | Current number of the clients being |
| | Operatory | 00 | | Serviced for queue |
| | ContextBlocks | 22 | ContextBlocksQd[/s] | blocks on FSP queue to await |
| | FileData | 27 | ReadData[kB/s] | Data read from files for the clients [kB/s] for queue |
| | | | TotalData[kB/s] | Data read and written to files for the clients [kB/s] for queue |
| | | | WriteData[kB/s] | Data written to files for the clients [kB/s] for queue |
| | FileOperations | 21 | ReadOps[/s] | Number of file read operations for the clients [/s] for queue |
| | | | TotalOps[/s] | Number of file read and write operations for the clients [/s] for queue |
| | | | WriteOps[/s] | Number of file write operations for the clients [/s] for queue |
| | NetworkData | 20 | RecData[kB/s] | Data recieved from network clients [kB/s] for queue |

| | | | SentData[kB/s] | Data sent to network clients [kB/s] |
|---------------|----------------|-----|---------------------|---|
| | | | TotalData[kB/s] | Data received and sent with the |
| | | | | network clients [kB/s] for queue |
| | Queue | 23 | QLen | Current length of server work queue for queue |
| | Threads | 24 | ActiveThreads | Current number of threads working |
| | | | | on a request from the server client |
| | | | | for queue |
| | | | AvailIhreads | Current number of threads not working on requests from a client |
| | WorkItems | 25 | AvailWorkItems | Current number of available work |
| | | | BorrowedWorkItems | Current number of borrowed free work items from another CPU for |
| | | | WorkltomShortogoo | queue |
| | | | workitemShortages | shortages for queue |
| System | FileData | 56 | ContrFileData[kB/s] | Data transferred for file system operations that is neither read nor |
| | | | | Write [KB/S] |
| | | | ReadFileData[KB/S] | from all devices or file system cache [kB/s] |
| | | | WriteFileData[kB/s] | Data written for file system |
| | | | | operations to all devices or file |
| | | | | system cache [kB/s] |
| | FileOperations | 55 | ContrFileOps[/s] | Number of file system operations |
| | | | ReadFileOps[/s] | Number of file system read |
| | | | | operations to all devices (including file system cache) [/s] |
| | | | TotalFileOps[/s] | Number of read and write operations on all logical disks [/s] |
| | | | WriteFileOps[/s] | Number of file system write |
| | | | | file system cache) [/s] |
| | Miscellaneous | 57 | AlignmentFixups[/s] | Number of alignment faults fixed [/s] |
| | | | ContextSwitches[/s] | Number of switches from one |
| | | | CurrCPUQLen | Current number of threads (ready, |
| | | | ExcDispatches[/s] | Number of exceptions dispatched |
| | | | | [/s] |
| | | | FloatingEmul[/s] | Number of floating emulations [/s] |
| | | | RegistryQuotaUse[%] | Current usage of the Total Registry Quota Allowed [%] |
| | | | SystemCalls[/s] | Number of calls to system service routines [/s] |
| | Objects | 58 | Processes | Current number of processes |
| | | | Threads | Current number of threads |
| | Properties | 104 | CPUClockSpeed[MHz] | CPU clock speed [MHz] |
| | | _ | | Total physical mamory [MD] |
| WorkloadClass | | 95 | | Processor time spont executing |
| VVUINUAUUIASS | | 00 | Fuvilegeu fillie[%] | code in privileged mode [%] for workload class |
| | | | TotalTime[%] | Processor time spent executing code [%] for workload class |
| | | | UserTime[%] | Processor time spent executing |

| | | | code in user mode [%] for workload |
|---------|----|-------------------|---------------------------------------|
| | | | class |
| 10 | 89 | IODataOps[/s] | Number of read and write I/O |
| | | | operations [/s] for workload class |
| | | IOData[kB/s] | Data read and written in I/O |
| | | | operations [kB/s] for workload class |
| | | IOOtherData[kB/s] | Data transferred for I/O operations |
| | | | without e.g. control operations |
| | | | [kB/s] for workload class |
| | | IOOtherOps[/s] | Number of I/O operations that are |
| | | | neither a read or a write operation |
| | | | [/s] for workload class |
| | | IOReadData[kB/s] | Data read from I/O operations |
| | | | [kB/s] for workload class |
| | | IOReadOps[/s] | Number of read I/O operations [/s] |
| | | | for workload class |
| | | IOWriteData[kB/s] | Data written to I/O operations [kB/s] |
| | | | for workload class |
| | | IOWriteOps[/s] | Number of write I/O operations [/s] |
| | | | for workload class |
| Memory | 87 | PageFileData[MB] | Current data used in the paging |
| | | | file(s) [MB] for workload class |
| | | PoolNonpgData[MB] | Current data in the nonpaged pool |
| | | | (nonpageable memory) [MB] for |
| | | | workload class |
| | | PoolPagedData[MB] | Current data in the paged pool |
| | | | (pageable memory) [MB] for |
| | | | workload class |
| | | PrivateData[MB] | Current data allocated that cannot |
| | | | be shared with others [MB] for |
| | | | workload class |
| | | VirtualData[MB] | Current virtual address space size |
| | | | [MB] for workload class |
| | | WorkingSet[MB] | Current Working Set [MB] for |
| | | | workload class |
| Objects | 88 | Handles | Current number of handles open |
| | | | for workload class |
| | | Threads | Current number of threads active |
| | | | for workload class |
| Paging | 86 | PageFaults[/s] | Number of page faults [/s] for |
| | | | workload class |

*) Measured values greater than 100% can occur, because the value also comprises the wait time for the device.

The busy value corresponds to the wait queue value (AvgQLen/ AvgReadQLen/ AvgWriteQLen) of the device.

A real busy value can be obtained using the idle value (100-Idle[%]). **) Not available on Windows 2000 Server.

7.1.5 VMware ESX Server

| Report Group | Report Name | R# | Meas. Variable | Description |
|--------------|------------------------|----|----------------------|---|
| ServerCPU | RealCPUs | 1 | NumberRealCPUs | Number of real CPUs (physical or logical) |
| | Time | 3 | Idle[%] | CPU idle time [%] |
| | | | UsedVMs[%] | Time CPUs are in use by virtual machines |
| | | | | which are alive at the end of measurement |
| | | | | Interval [%] |
| | | | Used[%] | CPU used time [%] |
| | | 28 | | CPU usage [MHZ] |
| Comerciale | VIVIS Data Data | 2 | | Number of Virtual machines |
| ServerDisk | Dalakale | 9 | | Average of data read [kB/s] |
| | | | DataNrite[kB/s] | Average of data written [kB/s] |
| | OperationRate | 10 | | Average number of I/Os [/s] |
| | Operationivate | 10 | Reads[/s] | Average number of reads [/s] |
| | | | Writes[/s] | Average number of writes [/s] |
| | TotalDataRate | 23 | TotalDatalO[kB/s] | Sum of I/O data over all disks [kB/s] |
| | TotalOperationRate | 24 | | Sum of I/Os over all disks [/s] |
| ServerMemory | HeapSize *) | 32 | HeapFree[MB] | Free heap space [MB] |
| |) i i cap c .=c | | HeapTotal[MB] | Total heap space [MB] |
| | Physical | 4 | Available[MB] | Memory available for general use by the |
| | y = | | | system or the virtual machines [MB] |
| | | | ServiceConsole[MB] | Memory allocated to service console [MB] |
| | | | System[MB] | Memory assigned to system services |
| | | | | (ServiceConsole + VirtualMem) [MB] |
| | | | Total[MB] | Total memory of the system (VMkernel + |
| | | | | ServiceConsole) [MB] |
| | | | VMKernelUsed[MB] | Memory currently used by VMkernel [MB] |
| | | | VMKernel[MB] | Memory currently allocated to VMkernel |
| | | | | [[MB] |
| | | | VIVIS[IVIB] | Memory assigned to the virtual machines |
| | | | VirtOverbeed[MP] | [IVID] Overhead memory for virtualization [MP] |
| | Peservable | 5 | Reservable[MB] | Reservable memory [MB] |
| | Treservable | 5 | Reserved[MB] | Reserved memory [MB] |
| | SwanRate | 8 | Swapln[kB/s] | Average of memory swapped in [kB/s] |
| | Owapitate | 0 | SwapOut[kB/s] | Average of memory swapped in [kB/s] |
| | SwapSize | 6 | SwapReserved[MB] | Reserved swap space [MB] |
| | 011400120 | Ŭ | SwapTotal[MB] | Total swap space [MB] |
| | Usage *) | 29 | Usage[%] | Memory usage [%] |
| | VM , | 7 | Active[MB] | Memory recently used [MB] |
| | | | Balloon[MB] | Memory reclaimed by balloon driver(s) |
| | | | | [MB] |
| | | | Consumed[MB] | Average amount of host memory |
| | | | | consumed by virtual machine for guest |
| | | | | memory [MB] |
| | | | Overhead[MB] | Average amount of memory that is |
| | | | | overnead [IVIB] |
| | | | Shared[IVID] | MB1 |
| | | | Size[MB] | Size of actual memory [MB] |
| | | | Target[MB] | Target memory size [MB] |
| ServerNet | Data | 11 | DataReceived[kB/s] | Average of data received [kB/s] |
| | 2 010 | | DataTransfer[kB/s] | Average of transferred data [kB/s] |
| | | | DataTransmit[kB/s] | Average of data transmitted [kB/s] |
| | | | PacketReceived[/s] | Average number of packets received [/s] |
| | | 1 | PacketTransfer[/s] | Average number of packets transferred |
| | | | | [/s] |
| | | | PacketTransmit[/s] | Average number of packets transmitted |
| | | | | [/s] |
| | TotalDataRate | 25 | TotDataTransf[kB/s] | Sum of transferred data [kB/s] |
| | TotalPacketRate | 26 | TotPacketTransf[/s] | Sum of all packets transferred [/s] |
| System | Properties | 27 | CPUClockSpeed[MHz] | CPU clock speed [MHz] |
| | | | NumberCPUs | Number of CPUs |
| | | | I otalPhysMemory[MB] | I otal physical memory [MB] |
| VMCPU | Shares | 14 | NumberShares **) | Number of CPU shares |

| | Usage | 30 | Usage[MHz] *) | CPU usage [MHz] |
|----------|---------------|----|--------------------|---|
| | UsedTime | 13 | UsedTime[ms] | Absolute value of used CPU time [ms] |
| | Utilization | 12 | Max[%] **) | Maximum CPU [%] |
| | | | Min[%] **) | Guaranteed minimum CPU [%] |
| | | | Plan[%] **) | Planned CPU [%] |
| | | | Used[%] | Used CPU [%] |
| | VirtualCPUs | 15 | NumberVirtalCPUs | Number of virtual CPUs |
| VMDisk | DataRate | 20 | DatalO[kB/s] | Average of I/O data [kB/s] |
| | | | DataRead[kB/s] | Average of data read [kB/s] |
| | | | DataWrite[kB/s | Average of data written [kB/s] |
| | OperationRate | 21 | IOs[/s] | Average number of I/Os [/s] |
| | | | Reads[/s] | Average number of reads [/s] |
| | | | Writes[/s] | Average number of writes [/s] |
| VMMemory | Limits | 16 | Max[MB] **) | Size of maximum memory [MB] |
| | | | Min[MB] **) | Size of minimum memory [MB] |
| | Shares | 17 | NumberShares **) | Number of memory shares |
| | Size | 18 | Active[MB] | Memory recently used [MB] |
| | | | Actual[MB] | Size of actual memory [MB] |
| | | | Balloon[MB] | Memory reclaimed by balloon driver(s) [MB] |
| | | | Consumed[MB] *) | Average amount of host memory consumed by virtual machine for guest memory [MB] |
| | | | Overhead[MB] *) | Average amount of memory that is overhead [MB] |
| | | | Shared[MB] *) | Average amount of memory that is shared [MB] |
| | | | Target[MB] | Target memory size [MB] |
| | SwapRate | 19 | SwapIn[kB/s] | Average of memory swapped in [kB/s] |
| | | | SwapOut[kB/s] | Average of memory swapped out [kB/s] |
| | Usage | 31 | Usage[%] *) | Memory usage [%] |
| VMNet | Data | 22 | DataReceived[kB/s] | Average of data received [kB/s] |
| | | | DataTransfer[kB/s] | Average of transferred data [kB/s] |
| | | | DataTransmit[kB/s] | Average of data transmitted [kB/s] |
| | | | PacketReceived[/s] | Average number of packets received [/s] |
| | | | PacketTransfer[/s] | Average number of packets transferred [/s] |
| | | | PacketTransmit[/s] | Average number of packets transmitted [/s] |

*) not available on VMware ESX 2 hosts. **) not available on VMware ESX 3 hosts.
7.2 Standard analyses

The manager is supplied with the databases BS2Analyses.mdb, UNIXAnalyses.mdb,

LinuxAnalyses.mdb and WindowsAnalyses.mdb containing the macros "BS2StandardAnalysis", "UNIXStandardAnalysis", "LinuxStandardAnalysis" resp. "WindowsStandardAnalysis" as well as the associated analysis jobs for analyses of type "Create Charts".

The macros perform a standard analysis of an *open*SM2 monitoring file and supply charts with the most important measurement data. The result of the analysis is saved as a Word document.

In order to execute the macro, you proceed as follows:

1. Transferring the macro

If you haven't done this yet, transfer the macro and the associated analysis jobs into the database for analyses with the "Import Data..." command in the "Extras" menu.

2. Executing the macro

The execution of the macro is controlled by options.

In the analysis jobs no data source is defined. You can specify the agent and the monitoring file using the -d option.

As analysis period in the analysis jobs *START-*STOP is specified. You can modify the analysis period with the -p option.

As output file in the analysis jobs "StandardAnalysis.doc" is specified. The file is allocated in the application data directory. You can modify the output file with the -g option.

Example for executing the macro WindowsStandardAnalysis:

"C:\Program Files\openSM2 V7.0\ANALYZER Manager\Analyzer" -m WindowsStandardAnalysis -s StandardAnalysis.log

- -d "mcp0123c":D:\Monitoring Files\mcp0123c.2006-06-06"
- -p "2006-08-12 07:00:00 2006-08-12 19:00:00"
- -g "D:\Windows Data\S20060812"

7.3 Diagram types and styles

7.3.1 Pie chart

2D and 3D pie charts are possible.

The diagram type pie chart is possible for time series only if the selected area comprises only one line.

Layout of the diagram

For each value of the result table, the value is represented by a pie segment.

Diagram style

As diagram style different types of the labelling can be selected.

7.3.2 Line chart

The following types of line charts are possible:

Lines

Both axes are linear.

Lines (log/lin)

The vertical axis is logarithmic and the horizontal axis is linear.

You should choose this diagram type for time series if you want to display very small values and very large values in a chart. Small values are also visible thanks to the logarithmic subdivision of the vertical axis.

Lines (log/log)

Both axes are logarithmic.

This diagram type is possible only for correlation diagrams.

Lines (lin/log)

The vertical axis is linear and the horizontal axis is logarithmic.

This diagram type is possible only for correlation diagrams.

Tapes

This diagram type is the 3D form of line charts.

This diagram type is possible only for time series.

Layout of diagram for time series

The values of the area selected in the result table are displayed in a coordinate system over a time axis.

The horizontal axis is the time axis. It is divided up according to the analysis subintervals of the selected area and is labeled with the time identifications of the analysis subintervals. For space reasons, it is not possible to label all subsections.

The vertical axis is the graduated scale of values of the selected area. It is subdivided and labeled as appropriate in accordance with the size of the values.

For all values, the value of each analysis subinterval is displayed above the subsection of the time axis assigned to the analysis subinterval.

Layout of diagram for correlation diagrams

The values of the area selected in the result table are displayed in a coordinate system.

The horizontal axis is the graduated scale of the first selected value and the vertical axis is the graduated scale of the second selected value. Both axes are subdivided and labeled as appropriate in accordance with the size of the values.

For each analysis subinterval a point is drawn, which indicates the size of the first value on the horizontal axis and the size of the second value on the vertical axis.

Diagram style and presentation of values

The diagram style determines how the values are presented: Lines Only The values in each overall value are joined by a line. Symbols Only The values in each overall value are marked by a symbol. Sticks The values in each overall value are represented by vertical strokes. Sticks And Symbols The values in each overall value are represented by vertical strokes with a symbol at the top. Lines And Symbols The values in each overall value are marked by a symbol and joined by a line. Lines And Sticks The values in each overall value are represented by vertical strokes; the tops of the vertical strokes are joined by a line.

Lines, Sticks And Symbols

The values in each overall value are represented by vertical strokes with a symbol at the top; the tops of the vertical strokes are joined by a line.

7.3.3 Scatter chart

The scatter chart consists of plotted points "scattered" around a coordinate system. The pattern of the points may reveal a relationship between the two values measured by the horizontal and vertical axes. You can illustrate trends in the plotted points by adding a curve.

Scatter charts are possible for correlations diagrams only.

Layout of diagram

The values of the area selected in the result table are displayed in a coordinate system.

The horizontal axis is the graduated scale of the first selected value and the vertical axis is the graduated scale of the second selected value. Both axes are subdivided and labeled as appropriate in accordance with the size of the values.

For each analysis subinterval a point is drawn, which indicates the size of the first value on the horizontal axis and the size of the second value on the vertical axis.

Diagram style and presentation of values

The diagram style determines how the values are presented:

Symbols

The sizes of both values are marked by a symbol for each analysis subinterval.

Curve

The sizes of both values are marked by an approximation curve for each analysis subinterval. **Curve And Symbols**

The sizes of both values are marked by a symbol for each analysis subinterval and an approximation curve is added.

7.3.4 Area chart

Area charts are possible for time series only. 2D and 3D area charts are possible.

Layout of the diagram

The values of the area selected in the result table are displayed in a coordinate system over a time axis.

The horizontal axis is the time axis. It is divided up according to the analysis subintervals of the selected area and is labeled with the time identifications of the analysis subintervals. For space reasons, it is not possible to label all subsections.

The vertical axis is the graduated scale of values of the selected area. It is subdivided and labeled as appropriate in accordance with the size of the values.

For all values, the value of each analysis subinterval is displayed above the subsection of the time axis assigned to the analysis subinterval.

Diagram style and presentation of values

The diagram style determines how the values are presented:

Cumulative

The subvalues of the 1st value are joined by a line, the underlying area is filled in. The following applies to each subsequent value: the values are added above, joined by a line, and the resulting new area is filled in.

Absolute

All values are displayed from the horizontal axis. For each value, the values are joined by a line and the area from the horizontal axis to the line is filled in.

Percentage

The subvalues of a value are displayed as a percentage of the whole.

Cumulative (log)

The vertical axis is partitioned logarithmically, otherwise like diagram style "Cumulative". This style option is possible only with 2D area charts.

Absolute (log)

The vertical axis is partitioned logarithmically, otherwise like diagram style "Absolute". This style option is possible only with 2D area charts.

7.3.5 Bar chart

Bar charts are possible for time series only. 2D and 3D bar charts are possible.

Layout of the diagram

The values of the area selected in the result table are displayed in a coordinate system above or beside a time axis.

Depending on the diagram style, the horizontal axis or the vertical axis is the time axis. It is subdivided in accordance with the analysis subintervals of the selected area and is labeled with the time identifications of the analysis subintervals. For space reasons, it is not possible to label all subsections.

The other axis is the graduated scale of the values of the selected area. It is divided and labeled as appropriate in accordance with the size of the values.

For all values, the value of each analysis subinterval is displayed above or beside the subsection of the time axis assigned to the analysis subinterval.

Diagram style and presentation of values

The values are represented by bars; the arrangement and appearance of the bars depend on the diagram style:

Vertical Clustered

The time axis is the horizontal axis.

The bars are vertical and grouped alongside each other for each analysis subinterval.

Horizontal Clustered

The time axis is the vertical axis.

The bars are horizontal and grouped one above the other for each analysis subinterval.

Vertical Stacked

The time axis is the horizontal axis.

The bars are vertical and overlaid on top of each other for each analysis subinterval. Horizontal Stacked

The time axis is the vertical axis.

The bars are horizontal and overlaid for each analysis subinterval.

Vertical Stacked %

The time axis is the horizontal axis.

The bars are vertical. In each analysis subinterval, the subvalues for all values are added and displayed as a percentage of this total.

Horizontal Stacked %

The time axis is the vertical axis.

The bars are horizontal. In each analysis subinterval, the subvalues for all values are added and displayed as a percentage of this total.

Vertical With Depth Effect (with 3D only)

The time axis is the horizontal axis.

The bars are vertical and grouped one behind the other with a depth effect for each analysis subinterval.

Horizontal With Depth Effect (with 3D only)

The time axis is the vertical axis.

The bars are horizontal and cascaded with a depth effect for each analysis subinterval.

7.4 Time axis

The time axis is created on the basis of the defined analysis period and output options.

Type Of Time Axis

The type of time axis is determined by the definition of "Time Axis" in the Output Options dialog box. A sample application illustrating the effects of setting the type of time axis can be found under Example 1.

Type Of Time Axis: Overall Period

If you select "Overall Period" as the type of time axis, the specified overall period is used as the start and end of the time axis.

In this case, a time stamp indicating the date and time is assigned to each analysis subinterval of the time axis.

In the analysis, a monitoring cycle is inserted in an analysis subinterval if its time stamp falls within the analysis subinterval with date and time.

Example:

Overall period: February 2006 Length of analysis subinterval: 1 day Analysis subintervals: 1st analysis subinterval: 2006-02-01 00:00:00 - 23:59:59 2nd analysis subinterval: 2006-02-02 00:00:00 - 23:59:59 to 28th analysis subinterval: 2006-02-28 00:00:00 - 23:59:59 Monitoring cycle: inserted in: 2006-02-02 08:00:00 2nd analysis subinterval 2006-02-02 10:00:00 2nd analysis subinterval 2006-02-05 10:00:00 5th analysis subinterval 2006-02-28 10:00:00 28th analysis subinterval

Type Of Time Axis: Time Windows

If "Time Windows" is selected as the type of time axis, the specified time windows is used to create the start and end of the time axis.

The start time of the first time window specified is the start time of the time axis, and the end time of the last time window specified is the end time of the time axis.

In this case, each analysis subinterval of the time axis is assigned a time stamp comprising only the time.

In the analysis, a monitoring cycle is inserted into an analysis subinterval if the time of its time stamp falls within the analysis subinterval.

Example:

Overall period: February 2006

Time windows: 06:00:00 - 20:00:00

Length of an analysis subinterval: 1 hour

Analysis subintervals:

| 1st analysis subinterval | : 06:00:00 - 06:59:59 |
|--------------------------|--------------------------|
| 2nd analysis subinterva | l: 07:00:00 - 07:59:59 |
| to | |
| 14th analysis subinterva | al: 19:00:00 - 19:59:59 |
| Monitoring cycle: | inserted in: |
| 2006-02-02 08:00:00 | 3rd analysis subinterval |
| 2006-02-02 10:00:00 | 5th analysis subinterval |
| 2006-02-05 10:00:00 | 5th analysis subinterval |
| 2006-02-28 10:00:00 | 5th analysis subinterval |

Dividing the time axis into analysis subintervals

The time axis is divided into regular intervals known as analysis subintervals.

The division is determined by the specification for "Analysis Subintervals" in the Output Options dialog box.

If you specify "Number Of Intervals", the time axis is divided evenly into the specified number of intervals.

If you specify the "Length Of Interval", the time axis is divided into analysis subintervals of the specified length.

Label Of Time Axis

Each analysis subinterval of the time axis is labeled with a time identification.

This time identification refers to the left margin of the analysis subinterval.

You can define the format of the time identification in the "Edit Chart" dialog box by specifying "Format For Labels Of Time Axis".

7.5 Examples

7.5.1 Example "Type of time axis"

This example illustrates the effect of the type of time axis on the result of an analysis.

Analysis A: Type of time axis is "Overall Period"

You want to analyze a monitoring file from the month of February 2004. The mean value of the CPU utilization is to be displayed for each day of the month. In each day, only the monitoring cycles from 08:00 hours to 18:00 hours are to be considered, except from the midday period from 11:30 hours to 13:30 hours.

You define your analysis as follows:

In the "Analysis Period" dialog box:

| "Overall Period" tab: "Time Windows" tab: "Exception Periods" tab: | February 2006 ("Month" option) 1st Time Window: 08:00:00 - 18:00:00 1st period: 11:30:00 - 13:30:00 ("Daily" option) |
|---|--|
| In the "New Value" dialog box: | |
| "Composition Of Value": "Variable a" tab: "Variable b" tab: "Variable c" tab: In the "Output Options" dialog box: | Formula: a+b+c TU Time TPR Time SIH Time |
| Type Of Time Axis: | "Overall Period" |
| Length Of Interval: | 1 day |
| The following time axis is creat | ed: |
| Number of analysis subint | ervals: 28 |
| Start: 01.02.2006 00: End: 28.02.2006 23: | :00:00 (start of overall period) :59:59 (end of overall period) |
| 1st analysis subinterval: 2nd analysis subinterval: to | 01.02.2006 00:00:00 - 01.02.2006 23:59:59 02.02.2006 00:00:00 - 02.02.2006 23:59:59 |
| 28th analysis subinterval: | 28.02.2006 00:00:00 - 28.02.2006 23:59:59 |

Analysis B: Type of time axis is "Time Window"

You want to analyze a monitoring file for the month of February 2006. The daily profile of CPU utilization is to be displayed, averaged over the days of the month. The monitoring cycles of the weekends are not to be considered.

You define your analysis as follows:

In the "Analysis Period" dialog box:

| "Overall Period" tab: "Time Windows" tab: "Exception Periods" tab: | February 2006 ("Month" option) 1st Time Window: 00:00:00 - 23:59:59 1st period: Friday 20:00:00 - Monday 07:00:00 ("Repeated" option) |
|--|--|
| In the "New Value" dialog box: | |
| "Composition Of Value": "Variable a" tab: "Variable b" tab: "Variable c" tab: | Formula: a+b+c TU Time TPR Time SIH Time |
| In the "Output Options" dialog box: | |
| Type Of Time Axis : Length Of Interval: | "Time Window" 15 minutes |

The following time axis is created:

Number of analysis subintervals: 96 Start: 00:00:00 (start of time window) End: 23:59:59 (end of time window) 1st analysis subinterval: 00:00:00 - 00:14:59 2nd analysis subinterval: 00:15:00 - 00:29:59 to 96th analysis subinterval: 23:45:00 - 23:59:59

Classification of monitoring cycles:

The monitoring cycles with the following time stamps are to be considered:

01.02.2006 00:16:00 09.02.2006 00:19:00 22.02.2006 00:20:00 28.02.2006 00:25:00

The monitored data is gathered in the following analysis subintervals:

Analysis A:

| 0:16:00 0:19:00 0:20:00 0:25:00 | 1st analysis subinterval 9th analysis subinterval 22nd analysis subinterval 28th analysis subinterval |
|--|--|
| | |
| 0:16:00 | 2nd analysis subinterval |
| 0:19:00 | 2nd analysis subinterval |
| 0:20:00 | 2nd analysis subinterval |
| 0:25:00 | 2nd analysis subinterval |
| | 0:16:00 0:20:00 0:25:00 0:16:00 0:19:00 0:20:00 0:25:00 |

In Analysis B, the monitored data of the four monitoring cycles is thus gathered in the same analysis subinterval. The days of the month are "overlaid" in this analysis.

In this case, "WINDOW" is supplied as additional information to the label of the time axis.

7.5.2 Example "Create hitlist"

This example illustrates how to create a hit list.

You want to analyze the monitoring file for the current day. The disk utilization levels of the five most utilized disks in the period from 08:00 hours to 16:00 hours are to be displayed.

You define your analysis as follows:

In the "Analysis Period" dialog box:

| "Overall Period" tab: | *TODAY: 08:00:00 - 16:00:00 ("Period" option) |
|--------------------------|---|
| "Time Windows" tab: | You do not specify anything here |
| "Exception Periods" tab: | You do not specify anything here |

In the "New Value" dialog box:

| "Composition Of Value": | "Single Meas. Var." op | otion |
|-----------------------------|--------------------------|---------------------------|
| "Measurement Variable" tab: | Report Group: | DISK |
| | Report: | Utilization |
| | Measurement Variable | e: Busy state (no paging) |
| | Monitored Object: | MN: * VSN: * |
| | Max. No. Monitored O | bjects |
| | In Partial Qualification | : 5 |

In the "Output Options" dialog box:

| Type Of Time Axis: | "Overall Period" |
|---------------------|------------------|
| Length Of Interval: | 15 minutes |

Effects on the value table:

A column with monitored data is output in the value table for each item in the hit list (i.e. for the five disks with the highest utilization levels).

8 Glossary

Analysis subinterval

The agent divides the time axis of the analysis period into regular intervals, known as analysis subintervals.

You can control the subdivision of the time axis by specifying the number or length of the analysis subintervals in the output options.

Application data directory

The application data directory contains the user-specific files of the manager. The name of the application data directory is e.g.

C:\Windows\Profiles\<username>\Application Data\openSM2 V7.0\ANALYZER where <username> is a certain user name.

Date variable

A date variable is replaced by the current date when starting the analysis, whereby a temporal offset can be specified.

A date variable is specified in the following form:

\$(DATE[-<days>][,<format>])

where <days> specifies the number of days before the current date and <format> is a valid format expression. If <format> is not specified the date is replaced in the form yyyy-mm-dd.

Examples for the replacement of a date variable on August 31, 2006:

| \$(DATE,d.m.yy): | 31.8.06 |
|---------------------------------|-------------------------|
| \$(DATE-1,dd.mm.yyyy): | 30.08.2006 |
| \$(DATE-2,yyyy-dd-mm): | 2006-29-08 |
| \$(DATE,dddd, d. mmmm yyyy): | Friday, 31. August 2006 |
| \$(DATE-1,dd.mm.yyyy hh:nn:ss): | 30.08.2006 16:11:25 |
| | |

The following table contains the characters for creation of user defined date and time formats:

| Character | Description |
|-----------|---|
| d | Day as number without leading zero (1-31) |
| dd | Day as number with leading zero (01-31) |
| ddd | Day as abbreviation (Mon-Sun) |
| dddd | Day with complete name (Monday-Sunday) |
| ddddd | Complete date (day, month and year), formatted according to the system setting for the short format of date |
| ddddd | Complete date (day, month and year), formatted according to the system setting for the long format of date |
| W | Weekday as number (1 for Sunday to 7 for Saturday) |
| WW | Calendar week as number (1-53) |
| m | Month as number without leading zero (1-12) |
| mm | Month as number with leading zero (01-12) |
| mmm | Month as abbreviation (Jan-Dec) |
| mmmm | Month with complete name (January-December) |
| q | Yearly quarter as number (1-4) |
| у | Calendar day as number (1-366) |
| уу | Year as two digit number (00-99) |
| уууу | Year as four digit number (1900-2200) |
| h | Hour as number without leading zero (0-23) |
| hh | Hour as number with leading zero (00-23) |

| n | Minute as number without leading zero (0-59) |
|-------|---|
| nn | Minute as number with leading zero (00-59) |
| S | Second as number without leading zero (0-59) |
| SS | Second as number with leading zero (00-59) |
| ttttt | Complete time (hour, minute and second) corresponding to the system setting for the time format |
| С | Date in the form ddddd and time in the form ttttt |

Format of time identification

The time axis is divided into regular intervals known as analysis subintervals.

Each of these analysis subintervals is labeled with a time identification which refers to the left margin of the analysis subinterval.

You can define the format of the time identification in the "Edit Chart" dialog box by specifying "Format For Labels Of Time Axis".

You can either select a pre-defined format or specify a user-defined format.

Pre-defined formats

| Format | Description | Example |
|---------------------|-------------------------------------|---------------------|
| hh:nn | Time without seconds | 08:00 |
| hh:nn:ss | Time with seconds | 08:00:00 |
| yyyy-mm-dd hh:nn | Date and time without seconds | 2006-01-01 08:00 |
| yyyy-mm-dd hh:nn:ss | Date and time with seconds | 2006-01-01 08:00:00 |
| yyyy-mm-dd | Date | 2006-01-01 |
| dd | Day in month | 01 |
| dddd | Day of week | Sunday |
| yyyy-mm | Year and month with month as number | 2006-01 |
| yyyy mmmm | Year and month | 2006 January |
| mm | Month as number | 01 |
| mmmm | Month | January |
| mm-dd hh:nn | Month, day and time without seconds | 01-01 08:00 |
| dd hh:nn | Day and time without seconds | 01 08:00 |

INSPECTOR

INSPECTOR is an application for the simultaneous online monitoring of several BS2000/OSD, UNIX, Linux, Windows and VMWare ESX Server systems with a Windows PC.

INSPECTOR is part of *open*SM2 (BS2000/OSD), *open*SM2 (Solaris), *open*SM2 (Linux), *open*SM2 (Windows) and *open*SM2 (VMWare ESX Server).

Monitoring cycle

The collection of monitored data is performed in regular intervals known as monitoring cycles. At the end of each monitoring cycle the monitored data are provided with a time stamp and written into the monitoring file.

openSM2 monitoring file

An *open*SM2 monitoring file is a monitoring file of the monitor SM2 in BS2000/OSD or a monitoring file allocated by an INSPECTOR agent for a UNIX, Linux, Windows or VMWare ESX Server system.

Port number

The manager communicates with the agents via sockets and requires a port number for this purpose. Ask your network administrator for the port number you can use.

You cannot simply use any port number you like, as this may already be used by another application.

Process hit list file

The process hit list file is written by an INSPECTOR agent parallel to the monitoring file if this is requested in the configuration file of the agent.

For each interval of the monitoring file this file contains the process hit list, i.e. a list of the processes consuming most CPU time in the interval. Additionally to the CPU time the process hit list contains further monitoring data for each process.

On request ANALYZER analyzes the process hit list file together with the monitoring file. If time series charts are created from the data of the monitoring file, for each interval in the chart the process hit list can be displayed. Thus for example load peaks can be assigned to the processes which were involved causally in the emergence of the load peaks.

The name of the process hit list file is formed from the name of the monitoring file by appending the suffix ".phl". For the analysis of the monitoring file and the process hit list file this name convention must be retained; the monitoring file and the process hit list file must be located in the same directory.

SM2 monitoring file

A SM2 monitoring file is a monitoring file of the monitor SM2 in BS2000/OSD.

Closed SM2 monitoring file

A closed SM2 monitoring file is no longer supplied with current monitoring data by SM2. It can contain monitoring data from periods any time in the past.

Open SM2 monitoring file

An open SM2 monitoring file is still open by SM2 and is supplied continuously with monitoring data. It can only be edited by the server if it is allocated as follows:

/CREATE-FILE FILE-NAME=<filename>

/SET-FILE-LINK FILE-NAME=< filename >,LINK-NAME=SMLINK,ACCESS-METHOD=*UPAM, -/ SUPPORT=*DISK(SHARED-UPDATE=*YES)

The monitoring file allocated in this way must be opened in SM2 as follows: //OPEN-LOG-FILE FILE=*BY-LINK-NAME,BUFFER-OUTPUT=*IMMEDIATE

Current SM2 monitoring file

The term "current SM2 monitoring file" is used synonymously with the term "open SM2 monitoring file" in ANALYZER.

If you want to analyze the current SM2 monitoring file, specify "*CURRENT" as the SM2 monitoring file.

Variable replacement

When starting an analysis job variables are replaced by their currently assigned values. If a variable is followed by a point, this point is lost during the replacement.

Example for the replacement of variables:

| &UID.SM2.OUT.&HOST: | \$MONITORSM2.OUT.ZE05H007 |
|--------------------------------|--|
| &UIDSM2.OUT.&HOST: | \$MONITOR.SM2.OUT.ZE05H007 |
| &UIDSM2.&HOSTOUT: | \$MONITOR.SM2.ZE05H007.OUT |
| if the values "ZE05H007" resp. | "\$MONITOR" were assigned to the variables &HOST and &UID. |