

# Data sheet

## FUJITSU Software BS2000 openSM2 (BS2000) V11.0

### System Performance Monitor

#### Product line FUJITSU Software BS2000 openSM2

Round-the-clock performance monitoring forms the basis for effective and economic operation of IT systems. With the openSM2 product line, Fujitsu offers a consistent solution for the enterprise-wide performance management of heterogeneous IT environments.

openSM2 provides comprehensive online monitoring with configurable alarm management, detailed bottleneck analyses as well as forecasts of future performance requirements and so gives the customer the capability to optimize the performance of his systems.

The FUJITSU Software BS2000 openSM2 product line consists of the products FUJITSU Software BS2000 openSM2 (BS2000) and FUJITSU Software BS2000 openSM2 (Open Systems) for SE Servers.

Specially for SE servers there is - beside the allways necessary openSM2 (BS2000) - an All-inclusive-package. This permits the monitoring of all systems within and outside the SE server. Together with openSM2 (BS2000) is offers a powerful solution to monitor all Server Units and Application Units as well as Storage systems and SNMP capable systems. For SE servers openSM2 offers a web based user interface: the openSM2 Manager.

#### FUJITSU Software BS2000 openSM2 (BS2000)

openSM2 (BS2000) provides the user with statistical data about the performance of the BS2000 and about resource utilization. All the relevant utilization data of CPUs, memory, channels and disks is collected as standard. The extent of the data collection can be adapted to suit requirements - up to and including seamless recording of system events for detailed bottleneck analyses - by using additional monitoring programs.

In addition to system monitoring openSM2 (BS2000) enables task and program-specific measurement data to be collected by user programs and analyzed using the product SM2-PA. SM2-PA supplies statistics about resource consumption of the task and the performance behavior of the user program as a starting point for tuning measures.



# Features and Benefits

Main features	Benefits
<p><b>FUJITSU Software BS2000 openSM2</b></p> <ul style="list-style-type: none"><li>■ Simple installation and configuration</li><li>■ Comfortable graphical user interfaces</li><li>■ Central performance monitoring of heterogeneous IT infrastructures</li><li>■ Uniform tool for various system types</li></ul>	<ul style="list-style-type: none"><li>■ Ready to run</li><li>■ Intuitive to use</li><li>■ Efficient and transparent performance management</li><li>■ Unified and graphically supported processing of all measurement data</li></ul>
<p><b>Online monitoring</b></p> <ul style="list-style-type: none"><li>■ Simultaneous monitoring of several systems with a different system type</li><li>■ Graphical and tabular presentation of the measurement data</li><li>■ Rule-based verification of the measurement data</li><li>■ Configurable alarms</li><li>■ Automatically triggered actions</li></ul>	<ul style="list-style-type: none"><li>■ Swift estimation of the overall situation</li><li>■ Precise assessment of system behavior</li><li>■ Automated monitoring</li><li>■ Early problem recognition</li><li>■ Rapid reaction to problems</li></ul>
<p><b>Offline analysis</b></p> <ul style="list-style-type: none"><li>■ Central analysis of systems with a different system type</li><li>■ Accurate analysis due to flexible selection of the analysis period and measurement variables</li><li>■ Automatic generation of a list of processes with the highest CPU consumption</li><li>■ Automatic generation of hit lists of the monitored objects with the highest utilization values</li><li>■ Time-controlled analysis using macro technology</li></ul>	<ul style="list-style-type: none"><li>■ Unified layout of charts and reports</li><li>■ Implementation of trend and bottleneck analyses</li><li>■ Fast identification of the main causes of peak loads</li><li>■ Simple identification of overloaded resources</li><li>■ Automation of analyses to be performed on a regular basis</li></ul>

# Topics

## SM2 monitor

The SM2 monitor consists of a privileged BS2000 subsystem that gathers the performance data and makes it available at a program interface and, if requested, saves it in a monitoring file, as well as a user program to manage the collection and screen presentation of the performance data.

## Measurement data

The SM2 collects all relevant system performance data as standard, including

- CPU utilization according to function states
- Number of I/Os per device type
- Number of tasks per task type
- Main memory and address space utilization
- Channel utilization
- Disk utilization

plus category-specific data, e.g.:

- Number of tasks in queues
- Main memory usage

Detailed performance statistics can be collected using additional monitoring programs, e.g.:

- Category and task-specific resource consumption (CPU time, I/O operations, main memory)
- Response times, transaction rates and TAC-class-specific values of UTM applications
- Response and wait times, together with transferred data volumes for BCAM connections
- Data transfer rates for TCP/IP connections
- Data transfer rates for channels
- Catalog accesses
- Number of accesses per cylinder and I/O times for disks
- Device service times
- Accesses to files on selected disks
- Frequency and duration of access to selected files
- Accesses to ISAM pools
- Accesses and hit rates for DAB caches
- Accesses and hit rates for Symmetrix systems, other systems with openSM2 (open systems)
- Frequency of file migrations by HSMS
- Data on computer communication with MSCF
- Hypervisor and guest system activities in VM2000 systems
- Data on the allocation of pubsets
- Data on the utilization of SESAM/SQL (as of V9.0) and UDS/SQL (as of V2.8) database systems

## Monitoring of SE servers

To monitor SE servers openSM2 has a web application, which is installed as an add-on to the SE Manager and is accessed via a link in the SE Manager. This is referred to as openSM2 Manager.

In addition to the functionality of the INSPECTOR Manager, the openSM2 Manager also offers the functions described below. The systems in the SE server are automatically determined and included in the monitoring.

User management with a role concept enables different rights to be assigned to the users.

An outline of the most important utilization values of all monitored systems with filter and sorting functions provides a swift overview of the overall utilization of the SE server.

The system group concept has been extended to include inhomogeneous and dynamic system groups. Inhomogeneous system groups contain systems of various types, thus enabling e.g. a system group with all its guest systems (VMs) to be mapped on a virtualized server. Dynamic system groups allow systems to be selected and grouped according to specific criteria. The members of these system groups are not permanently defined, but determined dynamically by means of filter functions so that any newly added systems can also be automatically allocated to a system group.

### Automatic evaluation with macros:

The openSM2 Manager has a new function for automating regular evaluations. The reports from a report view or the result of an export order can be generated under the control of a timer and can be made available for downloading as a file or sent by e-mail. This function replaces the macro technique used in ANALYZER.

There is a new Evaluations sub-point under views in the openSM2 Manager. Here there is an overview of all defined jobs with the option of creating a new job, enabling, disabling, editing or deleting jobs. Two report types are introduced:

### System table report:

This report is available for each type of measurement object; In a table, the measured values of all parameters are represented by all measurement objects of the measurement object type; this report type corresponds to the classic reports for parameters with measurement objects in INSPECTOR.

### System group table report:

This report is for each system type; a table shows the measured values for "important" parameters without a measured object (i.e. the measured variables of the activity report) for all systems in a system group (for non-homogeneous system groups, the report is only available for the global measured variables); this type of report is similar to the table reports in ANALYZER. The classic reports for parameters without a measured object (such as the activity report) are no longer available.

Each report that contains more than one parameter with measurement object is available as a system table report.

Each report that contains more than one parameter without measurement object is available as a system group table report. The measurement data is saved in two databases. One database

contains the current measurement data for online monitoring and the second (optional) database contains archived measurement data for offline analysis.

The archive scope (i.e. the systems and parameters whose measurement data are to be archived) is configurable. Furthermore, the archived measurement data can be compressed by putting several monitoring intervals together.

The measurement program STORAGE-SYSTEMS is not displayed any more at the user interface. Nevertheless it can be used, but some restrictions may apply.

### INSPECTOR

The INSPECTOR is no longer available for SE servers. The functionality is replaced by the Web application of the openSM2 Manager.

INSPECTOR enables simultaneous online monitoring of several systems using a Windows PC. Agents on the BS2000 server systems record the performance data via the SM2 program interface and send it via TCP/IP connections to the central manager on the PC, where it is monitored and presented in graphical form.

The monitored systems are displayed in the system list of the manager. The system list has a tree structure showing the association of the systems to system types and system groups. The symbol or color of a system indicates the current status of the system. The status display is constantly updated and enables exceptional situations to be detected instantly and an appropriate response to be made.

Several different types of reports are available for presenting the performance data in graphical or tabular form. Snapshot reports indicate the current system status in a chart or a table. Time series reports reveal how the performance values have changed over the last hours. The reports provide either an overview of several systems or show detailed performance data for a single system.

The user can specify the measurement variables and the monitored objects whose performance data is to be included in a report, as well as define new measurement variables by linking measurement variables by means of formulas.

The charts in the reports can be customized by selecting various diagram types (line, bar, logarithmic line, etc.), colors and other options. The charts can be printed with a single mouse click, saved to a graphics file or copied to the Clipboard for pasting into standard programs (Word, PowerPoint, etc.). A header and footer line can be inserted for printout and the labels can be modified.

The performance data can be monitored by means of user-defined rules. Conditions and actions are defined in a rule. If all conditions of a rule are fulfilled, an alarm for the rule is set off. The system entry in the system list takes the color defined for the rule and the actions defined for the rule are executed.

In BS2000 the previous INSPECTOR Agent is renamed as OPENSM2-MONITORING-AGENT

### ANALYZER

The ANALYZER is no longer available for SE servers. The functionality is replaced by the Web application of the openSM2 Manager.

ANALYZER is used to analyze SM2 monitoring files. The user specifies the type and scope of the analysis via the user-friendly graphical interface of the manager component. The analysis job defined in this way is processed by agents and the result is then presented by the manager. Several monitoring files – also from different systems – can be analyzed simultaneously in a single analysis operation. The monitoring files to be analyzed can be located on any systems on which agents run.

The analysis period can be defined in the analysis job, with the option to define time windows and exclude certain periods (e.g. weekends).

It is also possible to select the measurement variables, whose performance data is to be provided, as well as link several measurement variables by a formula and select monitored objects (e.g. CPUs, disks, channels, categories).

Various analytical functions (mean values, frequencies, minimum, maximum, quantiles, variance) are available for detailed analyses. By analyzing frequencies (e.g. percentage of the times with CPU utilization of more than 80%) it is possible for example to monitor defined service levels.

The main causes of load peaks are quickly identified by automatic production of a list of the tasks with the highest CPU consumption.

Likewise, overloaded resources are easily found by automatic production of hit lists of the monitored objects with the highest utilization values.

The analysis results are presented as a table or in various types of charts (time series, statistics, correlation, intensity), thus making them easy to interpret. In this way, for example, relationships between measurement variables can be identified through presentation as a correlation diagram. The charts can be customized by selecting various diagram types (line, bar, logarithmic line, etc.), colors and other options. The varied options of chart design and the simple transferability of data to other Windows applications also make ANALYZER an indispensable tool when it comes to creating monitoring reports.

The analysis result can be printed, saved as a file and also transferred to standard programs such as Excel and Word for further processing or to the Clipboard.

The macro technology of ANALYZER can be used to regularly perform analyses on a fully automatic basis.

The long-term files of ANALYZER provide the option of saving on a PC the performance data of selected measurement variables over extended periods of time and in compressed form for trend analyses and long-term capacity planning.

The automatic analysis function identifies performance bottlenecks on the basis of predefined rules. The result is presented as a structured list of messages which can be printed and saved.

The system configuration of a BS2000 server can be edited in a tree structure and searched for specific devices.

In BS2000 the previous ANALYZER Agent is renamed as OPENSM2-ANALYSIS-AGENT

# Technical details

## Technical prerequisites: Hardware

Monitored systems	BS2000 Business Server
INSPECTOR and ANALYZER Manager	x86-compatible PC or server with min. 800 MHz min. 512 MB main memory min. 100 MB free disk space min. 1024 x 768 screen resolution
Web-based user interface	SE Server

## Technical prerequisites: Software

Monitored systems	FUJITSU Software BS2000 OSD/BC V11.0
INSPECTOR and ANALYZER Manager	Microsoft Windows from 2000, Microsoft Windows Server from 2000 Microsoft .NET Framework 2.0
Web-based user interface	SE Manager Internet browser Microsoft Internet Explorer Mozilla Firefox Depending on the versions available for SE Manager

User interface	German and English, others on request
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Installation	By the customer (see Release Notice)
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Documentation	openSM2 User Guide Help functions of the user interfaces
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Demands on the user	In order to analyze and interpret the performance data, users should have an in-depth knowledge of the system.
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Training	See course offer
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Conditions	This software product is supplied to the customer under the conditions for the use of software products against a single payment or installments.
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Ordering and delivery	The software product may be obtained from your local Fujitsu Technology Solutions GmbH regional office.
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# More information

## Fujitsu products, solutions & services

### Products

<http://www.fujitsu.com/fts/products/>

In addition to BS2000, Fujitsu offers a full portfolio of other computing products:

- Storage systems: ETERNUS
- Server: PRIMERGY, PRIMEQUEST, Fujitsu SPARC M10, BS2000 Mainframe
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- Network

### Solutions

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[www.fujitsu.com/fts/services/](http://www.fujitsu.com/fts/services/)

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## More information

To learn more about BS2000, please contact your Fujitsu sales representative, Fujitsu business partner, or visit our website.

<http://www.fujitsu.com/fts/bs2000>

## Fujitsu green policy innovation

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[www.fujitsu.com/global/about/environment/](http://www.fujitsu.com/global/about/environment/)



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