For customers wanting an SNMP- and/or HTTP-based network, system and applications management tool, Fujitsu offers the product SNMP Basic Agent BS2000. The short name of the product is SBA-BS2. The SNMP basic agent in BS2000 serves to connect BS2000/OSD systems directly to a central management system for heterogeneous networks on the basis of the de facto protocol standard SNMP. It enables customers with large multi-vendor networks comprising heterogeneous systems to use SNMP for monitoring and control of the BS2000/OSD systems in the network from a central management platform (control center). In combination with the add-on products SNMP Standard Collection BS2000, SNMP Subagent UTM, and SNMP Subagent SM2 it provides comprehensive management functions, from traditional network management through system and applications management to the management of middleware.

The BS2000 is linked to SNMP management using the LAN connection supported by BCAM and the TCP/IP protocol. This means that a BS2000/OSD system may be included in the network like any other device, as a network element managed via SNMP. The SNMP basic agent understands and responds to SNMP protocol elements. As an add-on to the basic technology, the product also include other subagents handling accesses to the objects of the system components and applications managed in BS2000/OSD.

An authorized user can obtain and modify BS2000 management information using an industry standard web browser. The SNMP basic agent BS2000 provides a web interface for the purpose. The SNMP information is inserted into HTML pages and the HTTP protocol is used to output it to the web browser, e.g. on a PC.

The high level of security of the BS2000/OSD server is guaranteed by using the SNMP link. The SNMP connection has been provided with a range of complementary functions (how for example authorization, access control and encryption of SNMP-data) designed to protect against unauthorized access that might see the data in the BS2000 or impair the availability of the BS2000/OSD server.

Functional Description

The functionality of the SNMP management system implemented in BS2000/OSD corresponds to that typical of SNMP management in general and even goes beyond it in various areas of functionality. The administrator at an SNMP management station is offered three levels of information. The first level is monitoring, i.e. central monitoring of the functionality of all the components in a network. Any fault situations are reported as they arise and are also indicated graphically (i.e. by colored icons on a network map), as text or as an audible alert.

At the second level an administrator can obtain details about specific faults or general information (e.g. configuration data). The relevant object values are displayed at the management station in the form of tables or graphics.

At the third level, passive monitoring and information gathering is supplemented by the option of active control over the systems. Interventions can be made manually, e.g. using emulations or integrated applications. Management platforms such as Unicenter, OpenView NNM, Spectrum or Tivoli generally also permit automatic reactions to be defined. This is appropriate where it is possible for a fault report to be associated with a specific response, e.g. the restart of an application after a failure report.

In addition to many functional enhancements to existing subagents, level 6 (Version from 6.0) of the SNMP basic agent in the BS2000 includes two new subagents. The event subagent enables automatic responses to predefined situations and states, and the scheduler subagent enables the definition and control of timed processes. There have also been major enhancements in terms of management, for example enhanced integration with the enterprise system management platform Unicenter and support for security functions such as authorization and access control.
The extensions in the version 6.1 primarily serve the increase of the security within the network- and system management. So that the sensitive data that transfers with the SNMP-protocol are protected, the master-agent can encode the data before the transfer alternatively. SNMP-data encoded as recipients can use a suitable management-station or the autonomous management application of Console Monitor becomes.

The full functionality of the SNMP agent in the BS2000 is provided by a combination of the SNMP basic agent, the standard collection of subagents and two other subagents for openUTM and openSM2, which can be purchased separately. The expansions in the version 6.2 supported the new SQ servers (Intel-x86-processor based hardware models) and the extension connected with it in the BS2000/OSD V8.0.

The SNMP basic agent BS2000 contains the following:

- the SNMP master agent, which
  - implements the SNMP protocol and is therefore a basic requirement for SNMP management in the BS2000/OSD. It supports protocol versions SNMPv1, SNMPv2c and SNMPv3.
  - With utilization of SNMPv3, the authentication can be used with MD5 and the encoding of the BS2000 management information with DES, (56 bits key-length) is possible.
  - In addition to the SNMP protocol, BS2000/OSD management information can be accessed and edited in the form of HTML pages using the HTTP protocol.
  - Asynchronous SNMP traps can also be output at the web-browser.
  - An interface for connecting SNMP subagents is offered. That means, an access to additional system information is implemented and project-specific subagents can also be connected.
- the "Application Monitor" subagent for monitoring user applications, BCAM applications, BS2000/OSD subsystems and log files. Information written to a log file (directly in the BS2000 or in POSIX), can be sent to a management center as a message (SNMP trap). The "Application Monitor" is also able to evaluate job variables and generate SNMP traps as messages. It can likewise generate SNMP traps on status changes of subsystems in the BS2000/OSD.
- the "Console Monitor" subagent for transmitting BS2000 console messages to the "Console and Application Monitor" management application, for entering console commands and for responding to questions appearing on the BS2000 console/the monitor. The BS2000 messages are transmitted to the corresponding "Console and Application Monitor" using traps. Additional filters may be set in the BS2000 agent system in order to restrict the flow of messages.
- the supervisor subagent, which is linked especially closely to the master agent. It monitors all events that the master agent receives from the other subagents. Traps are generated upon logon and logoff of the other subagents and in the case of losing connections. This means that all subagents and the master agent in BS2000/OSD can be monitored with only one SNMP poll. Furthermore can start individual subagents over the supervisor subagent and finished.
- the event subagent, which executes periodic queries for MIB objects of other subagents and which can initiate simple actions if certain conditions are met. The actions might be sending traps or running SNMP set operations. A typical use is to monitor subagents that do not issue traps themselves.
- the scheduler subagent, which executes timed SNMP set operations that change the status of MIB objects. This could trigger changes in the monitored system or change the status of monitored items.
- the HTML subagent, which is required if customer-specific HTML pages are to be set up for Web access. It supplies the information for constructing the pages in the "custom" branch on the master agents.
- support for the system-specific parts of MIB-II (System Group and SNMP Group corresponding to RFC 1213) for network management. The associated administrative MIBs (RFC 2261 - 2265) are also supported in the SNMPv3 protocol variant.

Integration in a management platform

To make it easier for the user to integrate the BS2000/OSD in a range of management platforms, SNMP basic agent BS2000 is supplied with a CD-ROM containing the BS2- SNMP-WIN package collection for Windows.

The package collection contains separate to the operating system:

- the TCL/TK-toolset "tclset" is the basic package for use of the following management applications. It contains a TCL/TK interpreter, which enables the applications which are written in TCL/TK.
- the "Console and Application Monitor" (CMBS2) subagent for displaying BS2000 console messages with the option of filtering on the monitor, for entering console commands, for responding to questions appearing on the console, and for executing predefined automatic responses to messages. It is also possible to monitor the applications in the BS2000/OSD as well as the accessibility of the BS2000/OSD system itself. The management application for the "Console and Application Monitor" is for Windows available and can also run as a stand-alone unit, i.e. without a management platform. It can be integrated however also into a management platform. On Windows systems, the data interchange with BS2000/OSD system, will become transfer also encoded. An extensive online help system enables an intuitive service.
- the management application "Performance Monitor" (PMBs2). It works in collaboration with the Performance-Monitor Agent from the product ‘SNMP-Subagent SM2’ of BS2000/OSD.
- the management application “Cluster Monitor” (CluMon). It works in collaboration with all SNMP agents which support the Cluster-MIB. Together with the HIPLEX Agent of BS2000/OSD this management application can be used for the monitoring of HIPLEX-clusters.
- the management application “BCAM Monitor” (BMBs2). It works in collaboration with the BCAM Agent and the MIB-II Agent of BS2000/OSD.

Further will include the MIB-files of all agents to the integration into a management-platform on the CD-ROM additionally.

The package collection and the MIB-files can also be downloaded from the Internet at Link ’SNMP management’ on the following WWW address http://ts.fujitsu.com/snmp.

In principal, the open SNMP protocol can be used to connect the SNMP agent in the BS2000 to all management centers. The management platform recommended and supported as the first priority is the CA Unicenter on Windows. This product offers all the options for integrating BS2000/OSD with its standardized proprietary MIBs.
TECHNICAL DETAILS

SNMP-BASIC-AGENT BS2000 V6.2

Technical requirement

Hardware
All systems of the Sxxx, SX1xx and SQxxx series supported by BS2000/OSD V7.0 or higher or OSD/XC V4.0 or higher. For installation of the product on the BS2000/OSD system, approx. 44,700 PAM pages (90 MB) of storage space is required.

Technical requirement

Software

Agent element
For SNMP Basic Agent BS2000 V6.2:
BS2000/OSD-BC V7.0 or higher or OSD/XC V4.0 or higher, openNet Server V3.0 or higher,
SDF-P-BASYS (already included in BS2000/OSD),
IMON-GPN (already included in BS2000/OSD),
POSIX-BC (already included in BS2000/OSD),
POSIX-Sockets (already included in BS2000/OSD),
JV V14.0C or higher (if the Application Monitor is to be used).

Manager element
The management application for “Console and application Monitor” (CMBS2) can be integrated into the management platforms, but also runs as a ‘standalone’ on Windows. As the requisite tcl/tk interpreter is shipped in the tcset package (for Windows), no version dependence needs to be taken into account and for the application.

If multiple management stations on a system (e.g. Unicenter and Console and application Monitor) are to receive traps at a port in parallel, a trap distributor is required. On Windows, the Microsoft trap distributor can be used. The web interface can be called using any available web browser, but use of the latest versions is recommended wherever possible.

Operating mode
Dialog

Implementation language
C

User interface

English/German

Installation

By the user on the basis of the release notice and the user guide.

Documentation

User Guide
The documentation is available in the form of online manuals at http://manuals.ts.fujitsu.com/mainframes.html or can be ordered in the form of printed manuals for an additional payment at http://manualshop.ts.fujitsu.com.

Demands on the user

Knowledge of the operation of SNMP management systems and product installation in BS2000.

Training

See course offer at: http://training-mediaserver.ts.fujitsu.com/elearningmedia/catalog

Conditions

This software product is subject to the general terms and conditions of the software product use and service agreement.

The management applications for the "Console and Application Monitor" (CMBS2), the Performance Monitor (PMBS2), the Cluster Monitor (CluMon) and the BCAM Monitor (BMBS2), which are supplied as part of the package on a separate CD-ROM/downloadable from the Internet, may only be used if the corresponding subagent/the product containing the subagent has been licensed.

Ordering and delivery

This software product may be obtained from your local Fujitsu Technology Solutions regional office.