
FUJITSU Software openUTM (BS2000)
FUJITSU Software openUTM CRYPT (BS2000)

Version 6.3A
May 2018

Release Notice

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1 General

The open and universal transaction monitor openUTM supports the creation and operation of transactional applications under the FUJITSU operating system BS2000 as well as under commonly available Unix systems (Solaris, HP-UX, AIX) or Linux and Windows systems.

FUJITSU Software openUTM lets you implement client/server architectures and create distributed transaction applications in homogenous and heterogeneous IT infrastructures (multi-tier architecture).

Some tools are included free of charge in openUTM product:

- The graphical User Interface WinAdmin for administration of UTM applications is shipped with media kit DVD.
A separate Release Notice is available for WinAdmin.
- The web based tool WebAdmin is available for administration of UTM applications via Internet browser.
A separate Release Notice is available for WebAdmin.
- WS4UTM is a tool which offers a convenient method for making program units of a UTM application available as web services. It is possible to call a UTM-Service as a web service from a web application implemented in Java. This allows UTM to be integrated into SOA solutions.
(SOA = Service Oriented Architecture)
- "XML for openUTM" provides openUTM with a convenient interface for creating and processing data in the form of XML documents.
A separate Release Notice is available for UTM-XML.
- BizXML2Cobol permits the creation of Cobol data structures from existing service definitions (WSDL description or XML schema) and code, which can be integrated in existing transactional Cobol applications so that these implement the predefined service. Thus, the top-down approach (from the business-relevant definition to implementation) in SOA projects is also supported for the inclusion of existing program logic.

Additionally openUTM can be combined with further chargeable products.

- FUJITSU Software openUTM Client is a product which allows client/server communication with openUTM server applications and is available as a separate product for the Fujitsu operating system BS2000 as well as for Unix, Linux and Windows systems.
A separate Release Notice is available for openUTM-Client.
- The add-on product FUJITSU Software openUTM LU62 (Unix/Windows) V5.1 supports connections to CICS/IMS applications on IBM systems via SNA LU6.2.
A separate Release Notice is available for openUTM LU62.
- The product FUJITSU Software BeanConnect enables UTM applications to connect to Java EE Application Servers. BeanConnect also includes a component for creating Java clients for openUTM.
A separate Release Notice is available for BeanConnect.

Encrypted transfer of messages between the UTM application and the client is provided by additional encryption software for openUTM and openUTM Client with the carrier system UPIC.

The add-on product FUJITSU Software openUTM CRYPT (BS2000) is available for openUTM (BS2000).

More information about the above mentioned products and the data sheets are available at:

<http://de.ts.fujitsu.com/openUTM>

openUTM is part of the comprehensive middleware suite openSEAS.

The middleware suite openSEAS enables the simple integration of individual applications and the interaction of existing and new applications. openSEAS perfectly complements the Fusion middleware of our strategic partner Oracle. Oracle Fusion middleware is a market-leading family of pre-integrated products, which ranges from application infrastructure development applications through to business intelligence.

Together this provides the platform for:

- Individual business-critical IT solutions
- Company portals
- Integration solutions for service-oriented architectures
- Web applications and portals
- Business processes

This Release Notice is a summary of the major extensions, dependencies and operating information with respect to openUTM (BS2000) V6.3A and openUTM CRYPT (BS2000) V6.3A under the operating system BS2000 and all the information necessary for migrating from the predecessor version openUTM (BS2000) V6.2A.

Changes which have become known subsequently are updated and provided in this file.

*2 The release level is that of: May 2018.

*2 Changes to release level September 2016 are marked with *2.

*1 Changes to release level January 2015 are marked with *1.

All BS2000 product Release Notices including this one are available on the Internet under the following URL:

<http://manuals.ts.fujitsu.com>

If you skip one or more previous versions when you install this product, you must heed the information from the Release Notices (and README files) of the previous versions.

The use of names, trademarks, etc. in this Release Notice does not entitle readers to assume that these names/designations may be used without restrictions by anyone. Often the names/designations are protected by law or contract, even if this is not indicated here.

1.1 Ordering

openUTM (BS2000) V6.3A and openUTM CRYPT (BS2000) V6.3A can be ordered from your local distributors.

openUTM (BS2000) V6.3A and openUTM CRYPT (BS2000) V6.3A are subject to the general terms and conditions of the software product purchase, maintenance, use and service agreement.

1.1.1 Licensing

The licenses are part of the contract that you entered into with Fujitsu Technology Solutions when you purchased openUTM (BS2000).

openUTM (BS2000) V6.3A is a product, for which user licenses are required and are available in variants according to the system performance, incl. a license per user class.

For distributed transaction processing there is an additional UTM-D user license per system (in variants depending on the performance class of the system, including license per user class).

1.1.2 License for encryption

openUTM (BS2000) V6.3A normally ships without the encryption software. If you wish to employ the encryption functions in the server product openUTM (BS2000) V6.3A, you have to separately order the add-on product openUTM CRYPT (BS2000) V6.3A incl. license. It contains the code of the encryption functions for openUTM (BS2000) V6.3A.

The delivery of openUTM CRYPT is subject to export restrictions. If openUTM (BS2000) V6.3A is to be used outside Germany with encryption functions, a special export permit must be obtained in advance.

1.1.3 License for CALLUTM

The program CALLUTM is delivered with openUTM on BS2000 systems. It enables the call of UTM services out of an arbitrary BS2000 Batch or Dialog task. The program offers a SDF interface and can be called from the BS2000 command mode.

For the use of CALLUTM V6.3A which is delivered with openUTM (BS2000) V6.3A a runtime license for openUTM CLIENT (BS2000) V6.3A is required due to the UPIC library is linked dynamically when CALLUTM is called. The advantage of the dynamically linkage is that the user can choose whether the communication should be done via socket or via CMX and whether if it should be done with encryption.

CALLUTM-STD V1.0 could be used instead of CALLUTM V6.3A if openUTM CLIENT (BS2000) V6.3A should not be licensed. It is delivered with openUTM (BS2000) V5.3A and V6.0A.

Please note that for CALLUTM-STD there is no maintenance i.e. there will be no error corrections and no development.

1.2 Delivery

1.2.1 Software on data media

The openUTM (BS2000) V6.3A and openUTM CRYPT (BS2000) V6.3A files are supplied via SOLIS. The current files and volume characteristics of openUTM are listed in the SOLIS2 delivery cover letter.

The delivery includes all product components for openUTM (BS2000) V6.3A (incl. openUTM-D) but does not include the encryption products.

The delivery of openUTM CRYPT (BS2000) V6.3A is subject to export restrictions; your local distributors will provide you with information about this.

Delivery components of openUTM (BS2000) V6.3A

The openUTM (BS2000) V6.3A delivery components are listed below.

<u>File</u>	<u>Contents</u>
<u>Module libraries</u>	
*2 SYSLNK.UTM.063.TPR	openUTM system code (TPR) for /390
*2 SKMLNK.UTM.063.TPR	openUTM system code (TPR) for x86
*2 SYSLNK.UTM.063	openUTM module library, TU code only
*2 SYSLNK.UTM.063.SPLRTS	SPL runtime system for openUTM
*2 SYSLNK.UTM.063.UTIL	Load library for UTM utility programs
*2 SYSLIB.UTM.063.XOPEN	Components for X/OPEN interfaces XATMI, CPIC, TX
<u>Includes/COPY elements</u>	
*2 SYSLIB.UTM.063.ASS	ASSEMBLER
*2 SYSLIB.UTM.063.COB	COBOL
*2 SYSLIB.UTM.063.C	C
*2 SYSLIB.UTM.063.PLI1	PL/1
*2 SYSLIB.UTM.063.PASC	PASCAL-XT
*2 SYSLIB.UTM.063.FOR	FORTRAN
*2 SYSLIB.UTM.063.SPL	SPL4
<u>openUTM messaging</u>	
*2 SYSMESH.UTM.063.MSGFILE	Message definition file
*2 SYSDAT.UTM.063.MTXTIN	Input for UTM tool KDCMTXT
<u>BS2000 messaging</u>	
*2 SYSMES.UTM.063 BS2000	message file
<u>Syntax file</u>	
*2 SYSSDF.UTM.063	
<u>Installation</u>	
*2 SYSSSC.UTM.063.180 SSD	object for BS2000/OSD-BC V9.0 (/390 and x86)
*2 SYSSSC.UTM.063.190 SSD	object for BS2000 OSD/BC V10.0 (/390 and x86)
*2	
*2 SYSNRF.UTM.063	NOREF file
*2 SYSRMS.UTM.063	RMS file
*2 SYSSII.UTM.063	Structure information for IMON
<u>openUTM-Tools</u>	
*2 SYSLNK.UTM.063.CALLUTM	UPIC-Application for Administration and Client Server Communication
*2 SYSSDF.UTM.063.CALLUTM	SDF Syntax file for the Client program CALLUTM
<u>Examples</u>	
*2 SYSPRC.UTM.063 Library	containing precompiled sample procedures which can be executed on systems without SDF
*2 SYSLIB.UTM.063.EXAMPLE	Library containing sample programs and sample procedures

Documentation

*2	SYSFGM.UTM.063.D	German Release Notice
*2	SYSFGM.UTM.063.E	English Release Notice

Product files for openUTM CRYPT (BS2000) V6.3A

The openUTM CRYPT (BS2000) V6.3A delivery components are listed below.

	<u>File</u>	<u>Contents</u>
*2	SYSLNK.UTM-CRYPT.063	System code for platform /390
*2	SKMLNK.UTM-CRYPT.063	System code for platform x86
*2	SYSSII.UTM-CRYPT.063	Structure information for IMON

openUTM WinAdmin

The openUTM (BS2000) V6.3A delivery includes the product FUJITSU Software openUTM WinAdmin V6.3A with which you can administer UTM applications with a convenient graphical user interface.

1.2.2 Software for download**openUTM WebAdmin**

Together with openUTM (BS2000) V6.3A the product FUJITSU Software openUTM WebAdmin is released.

openUTM WebAdmin offers a graphic administration interface which runs on a web server in contrast to WinAdmin.

openUTM WebAdmin is available for downloading on the openUTM website

<http://www.fujitsu.com/uk/products/software/partners/oracle/openseas-oracle/>.

XML for openUTM

The software "XML for openUTM" is a free add-on to openUTM. It is supplied "as is" and all use is at your own risk. The Software is available on the web under

<http://www.fujitsu.com/uk/products/software/partners/oracle/openseas-oracle/>.

This component contains the Open Source GNOME XML parser, which is provided in accordance with the conditions of the MIT license. This is included in the application package ('rt') and is also available on the web under

<http://www.opensource.org/licenses/mit-license.html>.

1.2.3 Software for WS4UTM and BizXML2COBOL

Consulting project packages, in the context of which the software „WebServices for openUTM" (WS4UTM) and BizXML2Cobol is made available, can be purchased from your local Fujitsu regional office. The manuals can be downloaded from the Internet:

<http://manuals.ts.fujitsu.com>.

The use of the software is only permitted within the framework of the license purchased in the project package.

1.3 Documentation

1.3.1 Availability

The documentation is available in the Internet:

<http://manuals.ts.fujitsu.com>.

The manuals are shipped as PDF files on the product medium.

The OSS and CMX manuals are also recommended for connection using the OSI-TP protocol.

1.3.2 Documentation of the Open Group interfaces

<u>Title:</u>	<u>Order number:</u>
CPI-C X/Open CAE Specification Distributed Transaction Processing: The CPI-C Specification, Version 2	ISBN 1 85912 135 7
Reference Model X/Open Guide Distributed Transaction Processing: Reference Model, Version2	ISBN 1 85912 019 9
TX X/Open CAE Specification Distributed Transaction Processing: The TX (Transaction Demarcation) Specification	ISBN 1 85912 094 6
XATMI X/Open CAE Specification Distributed Transaction Processing: The XATMI Specification	ISBN 1 85912 130 6

The X/Open manuals are available on the web. They can be obtained in printed form from bookstores quoting the ISBN number.

2 Software extensions

Only the extensions and improvements over the previous version openUTM (BS2000) V6.2 are described in the following section.

2.1 New functions in openUTM (BS2000) V6.3A

2.1.1 Additional UTM system processes for internal tasks

In addition to the processes specified via the start parameters, UTM starts up to three more processes which are kept free for internal open UTM tasks or for privileged administrator jobs. UTM system processes once started are retained for the entire application run even if the number of tasks is later reduced.

Generation and administration has been extended:

- Generation, KDCDEF statement MAX:
 - New operand PRIVILEGED-LTERM in order to mark a LTERM as privileged. All user jobs become privileged jobs via the log-in of a user with administration permissions.
 - Operand tasks: The maximum value has been reduced to 240 due to the additional system processes.
- Administration interface KDCADMI:
 - Data structure *kc_max_par_str*:
New field *privileged_lterm* for the generated privileged LTERM.
 - Data structure *kc_tasks_par_str*:
New fields *gen_system_tasks* and *curr_system_tasks* for the system processes.
 - Data structure *kc_curr_par_str*:
New field *curr_system_tasks* for the system processes.

2.1.2 Higher resolution of the consumed CPU time

The consumed CPU time is now output in microseconds for TACs and in milliseconds for USERS. The following interfaces have been modified:

- KDCADMI:
 - Data structure *kc_tac_str*:
New field *taccpu_micro_sec* for the average consumed time in microseconds.
 - Data structures *kc_user_str* and *kc_user_dyn1_str*:
New field *cputime_msec* for the consumed time in milliseconds.
- Command interface KDCADM:
 - KDCINF type=TAC:
TACCPU outputs the average consumed time in microseconds.
 - KDCINF type=USER:
CPUTIME outputs the consumed time in milliseconds.
- KDCEVAL lists:
 - Some times in the KDCEVAL lists are now output in microseconds.

2.1.3 New trace functions

Additional traces can be activated and deactivated in run mode:

- ADMI trace, i.e. trace the program interface to the administration (KDCADMI)
- X/Open traces (CPI-C, TX, XATMI)

The following interfaces have been modified:

- Start parameters:
New start parameters ADMI-TRACE, CPIC-TRACE, TX-TRACE and XATMI trace to activate the traces
- KDCADMI:
Data structure *kc_diag_and_account_par_str*
New fields *admi_trace*, *cpic_trace*, *tx_trace* and *xatmi_trace* to activate and deactivate the traces.

2.1.4 KDCDEF input/output via LMS library elements

In BS2000 systems KDCDEF statements can be read from LMS library elements and output with inverse KDCDEF in LMS library elements. The following interfaces have been modified:

- Generation
 - KDCDEF statement OPTION:
New operand value LIBRARY-ELEMENT(...) with the operand DATA.
 - KDCDEF statement CREATE-CONTROL-STATEMENTS:
New operand value LIBRARY-ELEMENT(...) with the operand TO-FILE.
- KDCADMI
Data structure *kc_create_statements_str*.
New fields *lib_name*, *elem_name*, *vers*, *type*, *stmt_type* and *file_error_code*.
- Messages
New messages K234, K519 and K520, when reading KDCDEF statements from LMS library elements and when outputting KDCDEF statements in LMS library elements.

2.1.5 Performance improvement

- UTM cache
The UTM cache has been optimized in order to improve performance when the UTM cache is used intensively (e.g. with very comprehensive transaction data).

2.1.6 Other changes

- Messages
 - The message area for system messages has been increased and now covers K001 to K399 (previously as far as K249). The following message areas have been moved:
 - The message numbers for mere KDCUPD messages now use K800 to K899 instead of K250 to K322.

The messages output by KDCUPD and by the online import are seen as system messages and remain unchanged.

 - The message numbers for KDCPSYSL and KDCPSYSL messages now cover K600 to K649 instead of K550 to K599.
 - New message K235 if the name resolution for a processor name lasts too long.
 - The standard message targets have been modified with messages K162 and K163.
- KDCADMI
 - The fields *auto_connect* for *kc_lpap_str* and *auto_connect_number* for *kc_osi_lpap_str* have the feature GPD instead of PD as before, i.e. changes for these fields now have a global application effect. An administrative change in the features "Automatic connection set-up" for LPAP and "Number of connections" for OSI-LPAP has an effect beyond the end-of-application.
 - New field *max_btrace_lth* for *kc_diag_and_account_par_str* for the maximum length of the recording data with an activated BCAM trace function.
- The Oracle user ID can also be specified in lower case letters with the KDCDEF statements DATABASE and RMXA.
- New example program ADJTCLT

Using the C part program ADJTCLT (ADJust TacClass Table) the user can manage how the processes are divided into the TAC classes depending on the current number of all processes and the current number of the asynchronous processes. The user creates a table with the required settings. The settings must be aligned so that at least one process is always free in order to handle other tasks, e.g. end-of-transaction processing of distributed transactions.

2.1.7 Last simulation with "Workload capture & replay"

The new function "Workload capture & replay" is used to record the communication between UTM applications and UPIC clients and then played with settable load profiles. The behaviour of the UTM application can thus be tested using high workload under real conditions.

"Workload capture & replay" consists of the following components:

- *UPIC capture*:
Record the communication with the UPIC client.

The trace function BTRACE (UTM-BCAM trace) is used to record a UPIC session (Capture); the function is available on all server platforms.

If the UTM application runs when tracing more than one task and thus several task-specific UTM-BCAM trace files have been created, you can sort the files using the supplied BTRACE procedure.

The (sorted) UTM-BCAM trace file must be transferred binary from BS2000 to Linux using the program openFT (as of V11.0). A binary transfer with FTP means that the Linux contents can no longer be interpreted.

Note: FUJITSU Software openFT is a product that is not free-of-charge.

- *UPIC Analyzer*:
Is used to analyze the recorded communication.
- *UPIC Replay*:
Is used to play the recorded UPIC session with various load parameters (speed, number of clients).

UPIC Analyzer and *UPIC Replay* are part of openUTM-Client (Unix, Linux and Windows systems) V6.3 and are only available on 64-bit Linux systems.

2.1.8 New and modified functions for openUTM WinAdmin

- WinAdmin supports all the new features of UTM V6.3 regarding the program interface to the administration. These include, for example, the new trace functions, writing KDCDEF statements in library elements when the inverse KDCDEF runs in BS2000 or the display of consumed user CPU time in milliseconds.
- Introduction of a lifespan for statistic values in order to restrict the number of statistic values stored in the configuration database.

2.1.9 New functions for openUTM WebAdmin

Additional functions

WebAdmin offers additional functions which go beyond KDCADMI functionality and which were so far only available in WinAdmin:

- Display message queues (DADM functionality)
- Manage statistic collectors and display their values in a table (including the new function "Lifespan for statistic values")
- Show statistics in graphic form (run graphic)
- Execute threshold actions for statistic collectors

Support the new features in openUTM V6.3

WebAdmin supports all the new features of UTM V6.3 regarding the program interface to the administration. These include, for example, the new trace functions, writing KDCDEF statements in library elements when the inverse KDCDEF runs in BS2000 or the display of consumed user CPU time in milliseconds.

Integration in SE Server

WebAdmin can be installed on the management unit (SE Manager) of an SE server as add-on and then offers basically the same range of functions as with operations outside the SE Manager.

***1 2.2 New functions in openUTM (BS2000) V6.3A10**

*1 Besides corrections the correction version openUTM V6.3A10 doesn't contain further
*1 functional extensions.

***2 2.3 New functions in openUTM (BS2000) V6.3A20**

*2 Besides corrections the correction version openUTM V6.3A20 doesn't contain further
*2 functional extensions.

2.4 Implemented change requests (CR)

Some of the new functions listed in section 2.1 were implemented as a result of change requests. A list of all change requests is shown below since there are change requests that cannot be directly assigned to a function topic:

- Extension of the KDCDEF statement OPTION to include the specification of a library element
- Optimization of the UTM cache memory accesses

3 Technical information**3.1 Resource requirements**Virtual address space

openUTM (BS2000) V6.3A has the following memory requirements:

System code: 3975 KB
openUTM CRYPT: 126 KB

Each UTM task occupies additional memory in classes 5 and 6 whose size depends on the application configuration and the application programs.

Static disk storage space

The openUTM (BS2000) V6.3A product files occupy approximately 28200 PAM pages on /390 computers and 31300 PAM pages on x86 computers.
The openUTM CRYPT (BS2000) V6.3A product files occupy approximately 300 PAM pages.

Dynamic disk storage space

The space required for KDCFILE, USLOG, SYSLOG files and the application program depends on the size of the configuration.

The disk space for Cluster global files also depends on the size of the configuration.

- *2 and, depending on the operating system, the following third-party products:
Solaris: SNAP-IX as of version 7.0.2.4; from Metaswitch Networks.
- *2 Linux: IBM Communications Server for Linux as of version 6.3
- *2 Windows: IBM Communications Server for Windows, as of version 6.1.2

The following versions are supported for distributed transaction processing with Java EE applications:

BeanConnect (Unix, Linux and Windows systems) as of V2.1

For client/server communication optionally:

openUTM Client (Unix, Linux and Windows systems) as of V6.0
(contains carrier systems UPIC V5.3; OpenCPIC V4.0)

openUTM Client (BS2000) as of V6.0

BeanConnect (Unix, Linux and Windows systems) as of V3.0
(contains the component JConnect)

For client-side load distribution in the cluster

CALLUTM (BS2000) as of V6.0

openUTM WinAdmin V6.3

openUTM WebAdmin V6.3

Note:

The software configuration includes some products that are still technically usable but for which later versions are available. You should always try and use the latest versions that are available.

openUTM (BS2000) cluster configuration:

- *2 To work with a UTM-Cluster application in BS2000 it is necessary to build a XCS-network out of several BS2000 computers. The BS2000 computers can be various business servers with different BS2000 versions (as of OSD V9.0A). A UTM-Cluster with other operating systems (Unix systems, Linux, Windows) is not possible, i.e. a UTM-Cluster application cannot be distributed between BS2000 and open systems.

3.3 Product installation

- *1 The installation of the product openUTM (BS2000) with the IMON installation monitor is
- *1 mandatory. You must follow the information concerning installation in the delivery cover
- *1 letter and in the product documentation as well as the information in this Release Notice.
- *1 The necessary inputs and the sequence of the installation are described in the IMON
- *1 documentation.

For the following product files, *DEFAULT-USERID is pre-set as the default user ID in the SSD objects:

SYSLNK.UTM.063.TPR Load library for /390 hardware

SKMLNK.UTM.063.TPR Load library for x86

SYSREP.UTM.063 REP file

3.3.1 The UTM subsystem

The entire UTM system code, including the mapping module to BS2000 and UTM-D system code, is loaded and administered by DSSM as one subsystem. The time at which the UTM system code

is to be loaded is defined in the DSSM statements for the UTM subsystem.

The default is `CREATIM=AT-CREATION-REQUEST`, meaning that the UTM subsystem must be started by issuing a command.

During a standard installation, SOLIS automatically creates the entry in the subsystem catalogue. Only the "Basic UTM system with UTM-D" case still exists.

The following SSD objects are supplied for entry into the subsystem catalogue:

- *2 SYSSSC.UTM.063.180 for BS2000/OSD-BC V9.0 for /390 and x86
- *2 SYSSSC.UTM.063.190 for BS2000 OSD/BC V10.0 for /390 and x86

3.3.2 Coexistence of multiple UTM versions (parallel operation)

It is possible to load multiple UTM versions on the same BS2000 system and run them at the same time in production mode.

Parallel operation is possible with all UTM versions that have been approved for the respective BS2000 system.

If you do this, keep the following in mind:

- Should older versions be retained, this must be explicitly specified with the installation in IMON. The standard situation is that they are de-installed.
- The subsystems must be started with the `VERSION-PARALLELISM=*COEXISTENCE-MODE` parameter in the `/START-SUBSYSTEM` command.
- Two UTM applications with the same application name cannot run in different UTM versions at the same time. openUTM would prevent the second application from starting.

3.3.3 Product installation of openUTM CRYPT (BS2000)

You should keep the following in mind when installing openUTM CRYPT (BS2000):

The system code of openUTM (BS2000) V6.3A and in the load library for the UTM utility programs includes the module `KCNOCRYPT` as the substitute for the encryption code. If you want to use the encryption functions with openUTM (BS2000) V6.3A, you then have to change the following before starting the UTM subsystem:

- *2 In the library with the UTM system code and in the load library for the UTM
- *2 utility programs the module `KCNOCRYPT` has to be replaced by the module
- *2 `KCECRYPT` and `KCECRYP`.
- *2 The `SYSRPC.UTM.063(COPY-CRYPT)` procedure is available to the user for
- *2 both these actions.

3.3.4 UTM-SM2 subsystem

With the BS2000 SM2 measurement monitor, you can display the current performance of UTM applications on the screen and collect the values in the SM2 measurement value file for later analyses.

The UTM-SM2 module is used for communication between openSM2 and openUTM (BS2000). It is implemented as an independent BS2000 subsystem.

The UTM-SM2 subsystem files ship with BS2000-GA. The entry for UTM-SM2 in the subsystem catalogue is created automatically during BS2000 installation.

The following versions of UTM-SM2 must be used:

UTM-SM2 V18.0 for BS2000/OSD-BC V9.0 for /390 and x86
UTM-SM2 V19.0 for BS2000 OSD/BC V10.0 for /390 and x86

SOLIS automatically generates the entry for UTM-SM2 in the subsystem catalog during standard installation. The following files are required for using UTM-SM2:

Load libraries:

SYSLNK.UTM-SM2.180 for BS2000/OSD-BC V9.0 for /390
SKMLNK.UTM-SM2.180 for BS2000/OSD-BC V9.0 for x86
SYSLNK.UTM-SM2.190 for BS2000 OSD/BC V10.0 for /390
SKMLNK.UTM-SM2.190 for BS2000 OSD/BC V10.0 for x86

REP file:

SYSREP.UTM-SM2.nnn REP file

SSD objects:

SYSSSC.UTM-SM2.180 for BS2000/OSD-BC V9.0 for /390 and x86
SYSSSC.UTM-SM2.190 for BS2000 OSD/BC V10.0 for /390 and x86

The following default values are pre-set in the SSD object:

- Load time: Loading with DSSM command required
- Load library: \$TSOS.SYSLNK.UTM-SM2.nnn or
 \$TSOS.SKMLNK.UTM-SM2.nnn
- Rep file: \$TSOS.SYSREP.UTM-SM2.nnn
 Suffix nnn = 180 for UTM-SM2 V18.0A
 Suffix nnn = 190 for UTM-SM2 V19.0A

The system administrator must not change the pre-set load time!

3.3.5 KDCMON subsystem

KDCMON is a tool for measuring UTM applications and is implemented as a separate subsystem.

With KDCMON, you can measure UTM applications running on one BS2000 system under different UTM versions. The KDCMON subsystem files ship with BS2000-GA. The entry for KDCMON in the subsystem catalogue is created automatically during installation of BS2000.

The following KDCMON versions must be used:

KDCMON V18.0A in BS2000/OSD-BC V9.0 for /390 and x86
KDCMON V19.0A in BS2000 OSD/BC V10.0 for /390 and x86

SOLIS automatically generates the entry for KDCMON in the subsystem catalog during standard installation. The following files are required for using KDCMON:

Load libraries:

SYSLNK.KDCMON.180 for BS2000/OSD-BC V9.0 for /390
SKMLNK.KDCMON.180 for BS2000/OSD-BC V9.0 for x86
SYSLNK.KDCMON.190 for BS2000 OSD/BC V10.0 for /390
SKMLNK.KDCMON.190 for BS2000 OSD/BC V10.0 for x86

REP file:

SYSREP.KDCMON.nnn REP file

SSD objects:

SYSSSC.KDCMON.180 for BS2000/OSD-BC V9.0 for /390 and x86
SYSSSC.KDCMON.190 for BS2000 OSD/BC V10.0 for /390 and x86

Executable programs:

SYSPRG.KDCMON.nnn Program for starting KDCMON
SYSPRG.KDCMON.nnn.KDCPMSM Program for converting measurement data

Message file:

SYSMES.KDCMON.nnn BS2000 message file

The following default values are set in the SSD object:

- Load time : implicit with the first call
- Load library: \$TSOS.SYSLNK.KDCMON.nnn or \$TSOS.SKMLNK.KDCMON.nnn
- REP file : \$TSOS.SYSREP.KDCMON.nnn
Suffix nnn = 180 for KDCMON V18.0A
Suffix nnn = 190 for KDCMON V19.0A

The system administrator must not change the load time default setting!

KDCMON is loaded by starting the program SYSPRG.KDCMON.nnn under \$TSOS.

3.4 Product use

3.4.1 Notes for upgrading to openUTM (BS2000) V6.3A

Components of different UTM versions may not be mixed. The version check of openUTM guarantees that the versions of the product components match.

Carry out the following steps when upgrading from an earlier version to openUTM (BS2000) V6.3A:

- Generate KDCFILE and KDCROOT with the KDCDEF of openUTM (BS2000) V6.3A (take any KDCDEF changes into account)
- Compile the ROOT source
- Compile any application-specific administration programs, if present
- Compile the MSGTAC program unit if present and, where applicable, separate asynchronous programs if their TAC was defined as the message target via the KDCDEF statement MSG-DEST.
- If application-specific message modules are used, the source for the message modules must first be newly generated with KDCMMOD and then compiled again (take deleted messages and changed message targets into account)
- Link the application program
- Transfer the user data with the KDCUPD of openUTM (BS2000) V6.3A to the new KDCFILE if the data is relevant.

KDCUPD of openUTM (BS2000) V6.3A supports the following version upgrades:

```
openUTM (BS2000) V6.0A ===> openUTM (BS2000) V6.3A
openUTM (BS2000) V6.1A ===> openUTM (BS2000) V6.3A
openUTM (BS2000) V6.2A ===> openUTM (BS2000) V6.3A
openUTM (BS2000) V6.3A ===> openUTM (BS2000) V6.3A
```

*2 3.4.2 Updating from openUTM (BS2000) V6.3A10 to V6.3A20

- *2 openUTM (BS2000) V6.3A20 is compatible with openUTM (BS2000) V6.3A10.
- *2 After the UTM subsystem has been restarted with the openUTM (BS2000) V6.3A20 system code, UTM applications and KDCFILE that were used in V6.3A10 can also be used without changes in V6.3A20. Users, who want to use all corrections, have to generate all application components again.
- *2
- *2

3.4.3 Converting a stand-alone application to a UTM-Cluster application

The following conversions are possible with a UTM-Cluster application:

- Conversion of a stand-alone application V6.3 to a UTM-Cluster application V6.3
- Conversion of a UTM-Cluster application V6.3 to a stand-alone UTM application V6.3

The UTM-Cluster application should always be bound on the computer, on which the necessary TU subsystems (e. g. CRTEPART) run with the smallest versions, because different versions are upwardly but not downwardly compatible.

This also applies for stand-alone applications.

For a UTM-Cluster application a change in the rotation time of the token in the XCS network may be necessary (DELAY-TIME in the subsystem NSM) to allow for a higher transaction throughput.

For details see the white paper Go2Cluster, which is available at:

<http://docs.ts.fujitsu.com/dl.aspx?id=6378912b-f996-43b1-8765-3710e8605d39> German
<http://docs.ts.fujitsu.com/dl.aspx?id=9afeffd7-91c8-48e8-b95e-1a11742d3371> English

For a detailed description see the manual "Using under BS2000".

3.4.4 Using openUTM CRYPT (BS2000) V6.3A in openUTM (BS2000) 6.3A

As standard openUTM (BS2000) V6.3A is shipped without encryption software. If you want to use the encryption functions in the server product openUTM (BS2000) V6.3A, the add-on product openUTM CRYPT (BS2000) V6.3A has to be ordered separately. It contains the code of the encryption functions for openUTM (BS2000) V6.3A.

3.4.5 Notes on migrating from /390 to SQ

If you migrate a UTM application from a BS2000 /390 to BS2000 / SQ (x86), the timer values that were generated for this application may have to be adjusted. This applies especially to the timers that monitor the runtime of the application programs that have been generated with the TAC TIME parameter. After a conversion, the values that were generated for CPU and real time monitoring must be checked and adjusted if necessary.

3.4.6 Optional REPs

Currently, no optional REPs are shipped with openUTM (BS2000) V6.3A.

3.5 Obsolete functions (and those to be discontinued)

3.5.1 Obsolete functions

not applicable

3.5.2 Interfaces to be discontinued

*2 BS2000 Versions:

*2 With openUTM V6.3A20 BS2000/OSD-BC V8.0 is no longer supported.

3.6 Incompatibilities

Program interface administration:

The data structure *kc_create_statments_str* was extended with object-incompatible; the source compatibility is retained. Subprograms which use the administration opcode KC_CREATE_STATEMENTS must be re-compiled for UTM V6.3.

The feature *auto_connect_number* now has the feature GPD instead of GP as before. An administrative change of *auto_connect_number* for an OSI-LPAP in UTM-F now has an effect beyond the end of the application.

Command interface administration

The output of the command KDCINF TAC,L=KDCALL has been modified.

- The output of the field TACCPU has been extended from 8 to 10 digits and the unit of the field TACCPU has been changed from milliseconds to microseconds.
- The output of the field USED has been reduced from 9 to 7 digits.

- The outputs of the fields USED, ERROR, DBCNT, TACELAP and DBELAP move to the rear as a result of the changes.

The output of the command KDCINF USER,L=KDCALL has been modified.

- The output of the field CPUTIME has been extended from 7 to 10 digits and the unit of the field CPUTIME has been changed from seconds to milliseconds.
- The outputs of the fields SECCNT and LTERM move to the rear as a result of the change.

Messages:

- Utilities KDCCSYSL and KDCPSYSL:
The numbers of the messages output by the utilities KDCCSYSL and KDCPSYSL have been modified. They are now between K600 and K649 (previously K550 to K599).
- Utility KDCUPD:
Some of the numbers of the messages output by the utility KDCUPD have been modified. They are now between K800 and K899 (previously K250 to K349).
- Utility KDCMMOD:
The transaction monitor message K131 has been withdrawn and may have to be removed from the change description for KDCMMOD for creating your own message module.

Support of the UTM Socket Protocol (USP):

As of UTM V6.3 only Socket partners are supported which use UTM Socket Protocol (USP) as of version UTM V5.2. Communication with Socket partners which use the old USP released with UTM V5.1 is rejected.

KDCEVAL:

Trace2 list:

The unit of the difference value (output in "WAIT end" records) for the CPU time consumed in the partial program run has been modified from milliseconds to microseconds.

Trace and Trace2 list:

The wait time in database calls has been modified from milliseconds to microseconds.

UTM server:

- CPI-C interface:
The CPI-C trace can no longer be activated via the job variables CPICTRACE, CPICBUFFER and CPICDUMP but only via the UTM start parameter CPIC-TRACE and the program interface to the administration.
The standard name of the trace file is KDC.TRC.CPIC.appliname.host name.tsn.
- TX interface:
The TX trace can no longer be activated via the job variable TXTRACE but only via the UTM start parameter TX-TRACE and the program interface to the administration.
The standard name of the trace file is KDC.TRC.TX.appliname.host name.tsn. Only one trace file is written. No prefix for the trace file can be set using the job variable TXPATH.
- XATMI interface:
The XATMI trace can no longer be activated via the job variable XTSVRTR but only via the UTM start parameter XATMI-TRACE and the program interface to the administration.
The standard name of the trace file is KDC.TRC.XATMI.appliname.host name.tsn. Only one trace file is written. No prefix for the trace file can be set using the job variable XTPATH.
Database coupling with XA:
The standard name of the trace file is KDC.TRC.XA.appliname.host name.tsn. No prefix for the trace file can be set using the job variable KDCXADBG.

3.7 Restrictions

not applicable

3.8 Procedure in the event of errors

The following documentation is required for diagnosis if an error occurs:

- Detailed description of the error situation and indication whether and how the error can be reproduced.
- BS2000 version with correction status and loader ID.
- openUTM-specific documentation:
 - UTM version with correction status
 - List of control statements for KDCDEF
 - For warm start errors or errors in KDCUPD and abnormal application end with PMIO20/PMIO22, the KDCFILE files are needed
 - Binder lists of the application program
 - DBL list of the application (dynamic link loader)
 - Compilation lists of affected program units
 - When reproducing errors, turn on TESTMODE=ON; TRACEREC should be set to at least 3000 (10000 if using UTM-D)
 - UTM dumps; remember to include the dumps of all tasks that were active at the time of the error
 - SYSLOG file
 - User dumps in case of XT58/XT5C, etc.
 - SYSLST/SYSOUT logs.

- For errors in connection with FHS also include:
 - Which FHS version was used
 - Format printout with IFG
 - Ready-to-use format module in file form or printout of the format with LMS or DPAGE
 - User dump at the time of the error in file form
- For errors in connection with databases, see the Release Notice for the respective database system.
- For errors with KDCUPD:
 - SYSOUT/SYSLST log for the KDCUPD run
 - UTM dump, provided one was generated
 - KDCDEF control statements for old and new KDCFILE if data security allows
 - Old KDCFILE
 - New KDCFILE with status prior to the KDCUPD run, or KDCDEF input data for new KDCFILE as a file.
 - all old global cluster files if a "cluster update" has been performed
 - all new global cluster files if a "cluster update" has been performed
- For errors in connection with RSO, see the information about the OLTP interface in the manual and the Release Notice for the version of RSO used.
- For distributed processing over LU6.1:
 - Any BCAM trace (PORT trace)
 - Any UTM-BCAM trace
- For heterogeneous connections, generation information and trace from openUTM LU6.2 and its SNA components and from IBM-SNA system.
- When using communication over OSI TP:
 - Activate the OSS trace in the UTM application.
- Also in the event of errors in a UTM-Cluster application:
 - all Cluster global files, logs, and DUMPS of all node applications
 - In case of problems that were caused by the interaction of the node applications the log files of all node applications
 - The start procedure and the procedures specified during generation as EMERGENCY-CMD and FAILURE-CMD.

4 Hardware requirements

openUTM (BS2000) V6.3A will run on all CPUs supported by the following BS2000 versions:

- *2 BS2000/OSD-BC V9.0 (/390 and x86 architecture)
- BS2000 OSD/BC V10.0 (/390 and x86 architecture)

openUTM (BS2000) V6.3A supports the following terminal types

8160, 9758, 9759, 9750, 9751, 9752, 9753, 9755, 9755, 9756, 9758 (generate as 9755 or 9763), 9763, 9770 and 3270.

openUTM (BS2000) V6.3A supports the following printer types:

9001, 9002, 9003, 9011, 9012, 9013, 9015, 9021, 9022 and 3287
and all printer types that are supported by RSO if the printouts are made via the UTM-RSO interface.

A list of all devices supported by openUTM (BS2000) V6.3A can be found in the manual "openUTM V6.3A Generating Applications".