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FUJITSU Software openUTM Enterprise Edition (Unix, Linux and Windows systems)

Version 6.4A  
July 2016

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.

Graphical User Interface WinAdmin for Windows OS is shipped with media kit DVD.

The web based tool WebAdmin is ready for administration via Internet browser.

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)

A separate Release Notice is available for WS4UTM.

"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.

A separate Release Notice is available for BizXML2Cobol.

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 (see separate Release Notice) 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, Linux and Windows systems) 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 possible as a result of the additional encryption software from openUTM and openUTM Client with the carrier system UPIC. There is also additional licensing and special coding software for openUTM (Unix, Linux and Windows systems).

More information about the listed products and the data sheets is available under:

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

openUTM is part of the comprehensive middleware suite openSEAS. The openSEAS middleware suite 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(Unix, Linux and Windows systems) V6.4A and openUTM-CRYPT (Unix, Linux and Windows systems) V6.4A under the operating systems Solaris, HP-UX, AIX, Linux and Windows and all the information necessary for migrating from the predecessor version openUTM (Unix, Linux and Windows systems) V6.3A.

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

The content refers to release level: July 2016.

openUTM (Unix, Linux and Windows systems) is the server component of the client/server package openUTM Enterprise Edition (Unix, Linux and Windows systems).

This package also includes:

openUTM-Client (client/server communication), openUTM WinAdmin and openUTM WebAdmin (graphical administration interfaces).

Not all products are available on the various platforms.

Separate Release Notices are available for the individual products.

The UPIC carrier system for UTM-Client applications with local connections (UPIC local) is part of openUTM.

In the case of openUTM clients on Unix, Linux and Windows platforms connected remotely over a network, a choice can be made between two carrier systems (UPIC and OpenCPIC), each of which delivers a different functionality.

The Release Notices are supplied with the products in the form of README files. Any changes that came too late to be included in the printed documentation are noted in this file and published as part of a correction release.

If one or more predecessor versions are skipped when this current product version is in use, it may be necessary to also take account of the information from the Release Notices (and/or README files) of the predecessor versions.

All Unix, Linux and Windows product Release Notices including this one are available on the Internet under the following URL:

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

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

## 1.1 Ordering

openUTM Enterprise Edition (Unix, Linux and Windows systems) V6.4A can be ordered from your local distributors.

openUTM Enterprise Edition (Unix, Linux and Windows systems) V6.4A is subject to the general terms and conditions of the software product purchase, maintenance, use and service agreement.

### 1.1.1 Licenses

The licenses are part of the contract that you entered into with Fujitsu Technology Solutions when you purchased openUTM Enterprise Edition.

openUTM Enterprise Edition (Unix/Linux/Windows) is a product for which a license must be purchased. Licenses are required in order to use the product. These are provided as a basic license for each system or partition plus licenses for each user.

For distributed transaction processing, there are also additional licenses in 5 different variants depending on the number of parallel connections between the applications.

For development purposes, development packages are available with one basic license for each system or partition and 2 users for developing UTM applications. Licenses for additional developers can be purchased separately.

The user licenses for openUTM-Enterprise Edition include client and server users.

Licenses for UTM-Cluster applications:

There is no special cluster license for the use of UTM-Cluster functions.

You have to license openUTM on every node regardless of whether you run a stand-alone application or a node application on this computer.

### 1.1.2 Licenses for encryption

The basic licenses do not include licenses for encryption functions. Additional licenses are required for encryption.

## 1.2 Delivery

### 1.2.1 Software on data media

#### **openUTM**

The openUTM files are supplied on two different DVD data media

- openUTM EED-DVD V6.4 (Software DVD w/o encryption function)
- openUTM EED-DVD V6.4 Crypt (Software DVD with encryption function)

This data media contains additional software products from the openUTM product family and communication products.

The delivery of the Crypt DVD subjects restrictions on export. If this software product is to be used outside Germany a special export permit must be obtained in advance.

The openUTM EED-DVDs must be ordered separately.

#### **openUTM WinAdmin**

The openUTM (Unix, Linux and Windows systems) V6.4A delivery includes the product FUJITSU Software openUTM WinAdmin V6.4A with which you can administer UTM applications with a convenient graphical user interface.

A separate Release Notice is available for openUTM WinAdmin.

## 1.2.2 Software for downloading

### openUTM WebAdmin

The product FUJITSU Software openUTM WebAdmin V6.4A is released together with openUTM V6.4A. openUTM WebAdmin provides an additional graphic administration interface which runs on a web server in contrast to WinAdmin.

A separate Release Notice is available for openUTM WebAdmin.

openUTM WebAdmin is available for downloading on the openUTM web site  
<http://de.ts.fujitsu.com/openUTM>

### XML für openUTM

The software "XML for openUTM" is an add-on to openUTM which is free of charge. Fujitsu Technology Solutions does not accept obligation for bug-fixing. 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://de.ts.fujitsu.com/openutm>

This component contains the Open Source XML parser libxml2, 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>

For further details, refer to the separate Release Notice.

## 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.

For further details, refer to the separate Release Notice.

## 1.3 Documentation

### 1.3.1 Availability

The documentation is available in Internet:

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

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

### 1.3.2 Documentation of the Open Group interfaces

Title: Order number:

Distributed Transaction Processing  
The XCPi-C Specification, Version 2  
X/Open CAE Specification ISBN 1 85912 135 7

Distributed Transaction Processing  
The XATMI Specification  
X/Open CAE Specification ISBN 1 85912 130 6

Distributed Transaction Processing  
The TX (Transaction Demarcation) Specification  
X/Open CAE Specification ISBN 1 85912 094 6

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

## 2 Software extensions

### 2.1 New functions in openUTM (Unix, Linux and Windows systems) V6.4A

#### 2.1.1 Saving compressed data

UTM can compress data in secondary storage areas (GSSB, LSSB), long-term storages (TLS and ULS), and the KB program area, and thus reduce resource consumption. The UTM pages saved on average per data compression can be displayed using the administration functions.

The following interfaces were extended to support this:

- Generation  
KDCDEF statement MAX: New operand DATA-COMPRESSION used to enable or disable data compression.
- KDCADMI administration interface
  - Data structure *kc\_curr\_par\_str*.  
New field *data\_compression* for displaying and modifying the current compression setting and new field *avg\_saved\_pgs\_by\_compr* for UTM pages saved on average per compression.
  - Data structure *kc\_max\_par\_str*.  
New field *data\_compression* for the generated compression setting.
- KDCADM command interface
  - KDCAPPL: New operand DATA-COMPRESSION for modifying the compression setting
  - KDCINF STAT: Output of the pages saved on average per compression (AVG COMPRESS PAGES SAVED).
  - KDCINF SYSPARM: Output of the generated compression setting (DATA-COMPRESSION (GEN)).

#### 2.1.2 Page pool information

UTM outputs the current values for page pool utilization.

The administration interface were extended for this purpose:

- KDCADMI administration interface
  - New object type KC\_PAGEPOOL for output of the page pool information.
  - New data structure *kc\_pagepool\_str* for the current utilization of the page pool.
- KDCADM command interface
  - KDCINF PAGEPOOL  
outputs the current utilization of the page pool.

### 2.1.3 Controlling the number of UTM system processes

The number of UTM system processes can be controlled by means of UTM generation, i.e. more or also fewer than the current maximum of three UTM system processes can be started.

The configuration interface was extended for this purpose:

- New KDCDEF operand MAX SYSTEM-TASKS. The default value \*STD corresponds to the former setting.

### 2.1.4 IP subnets

IP subnets can be defined for UTM applications in UNIX, Linux, and Windows systems. IP subnets are used to afford communication partners access without name resolution using DNS or to assign a specific address range to LTERM pools.

The following interfaces were changed to support this:

- Generation  
New KDCDEF statement SUBNET in order to define an IP subnet with the associated address ranges.
- KDCADMI administration interface
  - New object type KC\_SUBNET in order to query information on IP subnets
  - New data structure *kc\_subnet\_str* for the properties of an IP subnet

### 2.1.5 Host name longer than 8 characters

When starting a stand-alone or UTM cluster application on Unix, Linux, and Windows systems an attempt is made to map a local host name to a UTM host name via the conversion file. Thereby openUTM application can also run on systems with names longer than 8 characters.

On all systems the names of trace files for the ADMI trace and traces for the X/Open interfaces CPI-C, XATMI, and TX were modified.

### 2.1.6 openUTM as 64 bit application on Windows systems

On Windows systems with a 64 bit operating system, openUTM is available as 64 bit application.

Thus KDCUPD also supports the transition from 32 bit to 64 bit architecture on Windows systems.

### 2.1.7 Dynamic XA connection on Windows systems

On Windows systems dynamic XA connection is possible as an alternative. The settings required for this must be made in the Windows Registry.

### 2.1.8 Authorization data for Oracle databases

For security reasons, the authorization data for Oracle databases can now only be specified in the UTM generation. A specification in the start parameters is no longer permitted and rejected with message K237.



### 2.1.9 Other changes

- Messages
  - New message K167 on Unix, Linux, and Windows systems after successful switching of stdout and stderr.
  - New message K199 when a task or program run is terminated.
  - New message K237 when a user ID and/or password is specified in clear text in the XA open string for an Oracle database.
  - Additional insert XPOSAS (OSI-TP ASSOCIATION REFERENCE) in some XAP-TP messages.
- Administration commands
  - Output values of administration commands are output in floating point presentation if they require more space than available for the field.
  - KDCINF LTAC: new column D for LTACs which were deleted by means of dynamic administration.
- Trace entries
  - When event exits (START, SHUT, etc) are called, additional trace entries are written to the UTM-DIAGAREA.
- PID is always output in its full length on Unix, Linux and Windows systems.
- TNS is not supported on Windows 64 bit systems. The address information must be specified in the UTM generation.

### 2.2 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:

- New message K167 on Unix, Linux, and Windows systems after successful switching of stdout and stderr.
- Check of the length of the installation path on Windows systems.

## 3 Technical information

### 3.1 Resource requirements

Hard disk storage requirements for installation:

openUTM:

Solaris SPARC	32/64-bit: < 1 GB
Linux	32/64-bit: < 500 MB
HP-UX(Risc)	32/64-bit: < 500 MB
HP-UX (Itanium)	32/64-bit: < 500 MB
AIX	32/64-bit: < 500 MB
Windows	32/64-bit: < 100 MB

The main memory requirements for an executable UTM application depends on the one hand on the types of products used, such as language connections, databases, X/Open interface and distributed processing, and on the other hand on the number and extent of the application programs.

The dynamic memory requirements of the UTM resources for process communication (shared memory) depend on the extent and parameterization of the KDCDEF generation.

### 3.2 Software configurations

Solaris SPARC	32/64 Bit	as of V10
Linux(SuSE)	32/64 Bit	as of SLES 11
Linux(RedHat)	32/64 Bit	as of RHEL 6
HP-UX (Itanium)	32/64 Bit	as of V11.31
IBM-AIX	32/64 Bit	as of V6.1
Windows	32/64 Bit	as of Windows 7
Windows Server	32/64 Bit	as of Windows Server 2008 R2

UTM-Cluster applications are supported on platforms Solaris SPARC and Linux. On Windows systems the general release of UTM-Cluster applications is pending.

The node applications of a UTM-Cluster application must run on identical platforms under the same bit mode.

NFS V4 is needed for access to the global cluster files of openUTM-Cluster applications.

In order to use the openSM2 function the following are valid:

openSM2	V9
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The following are supplied with the product for communication over TCP/IP:

PCMX(Solaris)	6.0B10
PCMX(Linux i585)	6.0B10
PCMX(Linux x86_64)	6.0B10
PCMX(HP-UX Itanium)	6.0B10
PCMX(AIX)	6.0B10
PCMX-32(Windows)	5.0A80
PCMX-64(Windows)	5.0A90

The use of PCMX is only license-free in connection with openUTM.

When using openUTM V6.4A, the PCMX version supplied with the DVD or a higher one has to be used.

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

openUTM(BS2000)	as of V6.0
openUTM(Unix, Linux, Windows systems)	as of V6.1

If problems occur with UTM versions that Fujitsu Technology Solutions is no longer obliged to maintain, the user is not entitled to warranty or correction claims. In this case we recommend that you update to current versions of openUTM.

For client/server communication optionally:

openUTM-Client(Unix systems/Linux/Windows)	as of V6.1A
(contains carrier systems UPIC V6.1; OpenCPIC V4.0)	
openUTM-Client(BS2000)	as of V6.0A
BeanConnect	as of V3.0
(also contains the component JConnect)	

For administration using graphical interfaces:

openUTM WinAdmin	V6.4
openUTM WebAdmin	V6.4

A C/C++ compiler is required for all Unix, Linux and Windows systems, for Windows Visual Studio 2005/2008 or higher. For the use of the QuickStart Kit on Windows Visual Studio 2010 is required.

On Solaris systems Solaris Studio 12 is required for the deployment of the sample application.

Note about using the compiler XL C/C++ for AIX, V11.1:  
There is a hindering error in conjunction with shared objects  
<<http://www-01.ibm.com/support/docview.wss?uid=swg21443810>>

There is a patch for this problem from IBM which can be installed via "smit".  
<<http://www-01.ibm.com/support/docview.wss?uid=swg24032451>>

#### COBOL-Compiler:

Development of Cobol UTM applications:  
NetCOBOL as of V10.4 (Linux64bit)  
NetCOBOL as of V10.1 (Windows)  
Micro Focus Visual COBOL as of V2.0

#### For runtime:

Cobol runtime licenses from MicroFocus  
Note: The introduction of UTM system processes can result in problems with Cobol runtime licenses if the calculation is too exact.  
When calculating the required number of licenses a maximum of three additional licenses must be taken into account.

On Unix and Linux systems, the following database systems can be used:

ORACLE as of 10gR2  
INFORMIX as of V7.3 32-bit variant  
INFORMIX as of V9.4 64-bit variant

On Windows systems, the following database systems can be used:

ORACLE as of 10gR2

Alternatively, the following products can be used for communication with IBM-SNA systems via LU6.2:  
openUTM-LU62 (Unix or Windows systems) V5.1

and, depending on the operating system, the following third-party products:

#### Solaris:

SNAP-IX as of version 7.0.2.4; from Metaswitch Networks

#### Linux:

IBM Communications Server for Linux as of version 6.3

#### Windows:

IBM Communications Server for Windows, as of version 6.4

The following versions are supported for distributed transaction processing with Java EE applications:  
BeanConnect as of V3.0

#### 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.

## 3.3 Product installation

### 3.3.1 Installation on Unix/Linux platforms

On **Solaris** mount the DVD according to your operating system manual. In the appropriate directory you will find the products which can be installed with „pkgadd“:

```
pkgadd -d <DVD>/<package>.pkg
```

On **Linux** use the standard procedure „rpm“:

```
rpm -i <DVD>/<package>.rpm --nodeps [--ignorearch] [--replacefiles]  
[--prefix=<install-dir>]
```

For installing PCMX, please read the corresponding readme file.

For installing OUTM-LU62, please read the corresponding readme file.

On **HP-UX** mount the DVD (`mount -F cdrfs -o cdcase <device> <mountpoint>`).  
Change to the product directory and run the installation script with:  
`./xpinstall.sh`

For installing PCMX use:  
`swinstall -s <prod-dir>/cmx.ds -x target_type=tape -x reinstall=true CMX`

On **AIX** mount the DVD (`mount -v cdrfs -r <device> <mountpoint>`).  
Change to the product directory and run the installation script with:  
`./xpinstall`

For installing PCMX use:  
`installp -a -F -d <prod-dir>/cmx.ds CMX.all`  
For installing OUTM-LU62, please read the corresponding readme file.

On all Unix and Linux systems both the 32-bit and the 64-bit environment of openUTM is installed  
The Korn shell (ksh) must be in use in order to use openUTM.  
The pdksh package (Public Domain Ksh) must be installed on Linux systems.

### 3.3.2 Installation on Windows platforms

On Windows systems there exist two separate installation-packages of openUTM for 32-bit and 64-bit environments. For the installation on a 32-bit or 64-bit environment, please change to the product directory and run "utm-32.msi" or "utm-64.msi" respectively "utm-crypt-32.msi" or "utm-crypt-64.msi" under administration rights.

The recommended installation sequence is as follows:

1. Microsoft Visual C++
2. (optional) selected Cobol Compiler
3. PCMX (from openUTM-DVD)
4. openUTM

As of Windows 7 openUTM V6.4 must not be installed into a directory which contains spaces, e.g. "Program Files", another directory has to be used.

The length of the installation path must not be longer than 39 characters.

### 3.3.3 Installation together with C++ environment on Unix/Linux platforms

When using C++ subprograms make sure that the C++ development environment of openUTM can be activated with the installation.

The following applies for the C++ Compiler:

- Solaris: type CC must return as result the C++ Compiler
- Linux: type g++ must return as result the C++ Compiler
- AIX: the C++ Compiler must be under /usr/vacpp/bin/cc
- HP: the C++ Compiler must be under /opt/aCC/bin/aCC

mainutmCC.o is then created during installation of openUTM.

mainutmCC.o can also be created after installation of openUTM (if required) by making the following entries:

```
UTMPATH=<utmpfad>  
          <utmpfad>/shsc/CCmainutm  
export UTMPATH
```

For further details, see the manual "Using openUTM Applications".

### 3.3.4 Installation logs

During installation on Unix/Linux systems, a file with the name <utmpath>/utm.log is created. This file stores the information output to the terminal during installation.

### 3.3.5 Notes: Kernel parameters for openUTM

It may be necessary to increase the value of some of the Unix kernel parameters in order to run a UTM application. This affects the following kernel parameters (if more than one kernel parameter is specified per line, all the specified parameters must be changed to the same value):

- MAXUP Maximum number of processes per user  
It is always possible that a process bottleneck can arise for individual users (error message: fork failed) if they have to start a very large number of processes. In this event, MAXUP must be adjusted.
- SEMMNS, SEMMNU Maximum number of semaphores and semaphore structures  
The maximum number of semaphores required can be calculated using the description of MAX SEMKEY in the "Generating Applications" manual.  
You must take into account the fact that other products may be installed on the computer that also require semaphores. For instance, at least 20 semaphores are required for every INFORMIX database that has been started.
- SEMMAP, SEMMNI Maximum number of semaphore identifiers  
The semaphores are grouped to form semaphore fields and a (unique) semaphore identifier is assigned to each semaphore field.  
openUTM and Informix each group 20 semaphores to form one semaphore field.
- SFSZLIM, HFSZLIM Maximum size of a file (in bytes)  
Values as of 48 MB (0x3000000) are generally sufficient even for large UTM dumps.  
The entry ULIMIT=... in the file /etc/default/login must also be adjusted to match the new value.  
ULIMIT specifies the maximum file size (for normal users) in blocks (1 block = 512 bytes).
- SDATLIM, HDATLIM Maximum swap space per process (in bytes)
- SVMMLIM, HVMLIM Maximum virtual memory per process (in bytes)  
In order to allow larger UTM applications to be linked with COBOL program units, these values must be increased to at least 48 MB(0x3000000). When doing this, you must make sure that the swap area of the system is >= 48 MB.

#### Changing the kernel parameters under Solaris systems

Generally it is not necessary to change the kernel parameters. It is recommended to use "/etc/project" for tuning. Please refer to the Oracle Solaris documentation for details.

#### Changing the kernel parameters under Linux systems

It is not generally necessary to change the kernel parameters. Please refer to the documentation from your Linux distributor for details on the files in which the values can be changed and on how to generate a new kernel.

#### Changing the kernel parameters under HP-UX systems

<u>Parameter</u>	<u>Define</u>	<u>Default</u>	<u>Recommendation</u>
Max. no. of processes/user	maxuprc	256	sufficient
Max. no. of semaphore IDs	semmni	64	sufficient
Max. no. of semaphores	semmns	256	1024
Max. no. of semaphore structures	semmnu	30	200
	semume	10	66
Swap space	-	2*Mem	4*Mem

It is recommended that you use the HP tool "/usr/bin/sam" for tuning. For details, refer to the HP manual: System Administration Tasks - HP-9000 Series 800 Computers.

#### Changing the kernel parameters under AIX systems

Parameter	Define	Default	Recommendation
Max. no. of processes/user	maxuprc	256	sufficient
Max. no. of semaphore IDs	semnmi	36	64
Max. no. of semaphores	semmns	128	256
Swap space	-	2*Mem	4*Mem

It is recommended that you use the AIX tool "/usr/bin/smit" for tuning. For details, refer to the AIX manual: System Management Guides - RS/6000.

### **3.4 Product use**

#### **3.4.1 Notes for upgrading to openUTM V6.4A**

Carry out the following steps when upgrading from an earlier version

- Generate KDCFILE and KDCROOT with the KDCDEF of V6.4A
- Compile the ROOT source
- Compile the MSGTAC program unit, if present
- If a separate message module is used, the source for the message module must first be newly generated with KDCMMOD and then compiled again
- Link the application program
- Transfer the user data with the KDCUPD of openUTM V6.3A to the new KDCFILE if the data is relevant

KDCUPD supports the following version upgrades:

openUTM(Unix/Linux/Windows systems) V6.1A to openUTM(Unix/Linux/Windows systems) V6.4A  
 openUTM(Unix/Linux/Windows systems) V6.2A to openUTM(Unix/Linux/Windows systems) V6.4A  
 openUTM(Unix/Linux/Windows systems) V6.3A to openUTM(Unix/Linux/Windows systems) V6.4A  
 openUTM(Unix/Linux/Windows systems) V6.4A to openUTM(Unix/Linux/Windows systems) V6.4A

Note:

A transfer of the user data with KDCUPD from 32-bit mode to 64-bit mode is possible

#### **3.4.2 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 V6.4 to a UTM-Cluster application V6.4
- Conversion of a UTM-Cluster application V6.4 to a stand-alone UTM application V6.4

For detailed description see the manual "Using under Unix and Windows Systems".

#### **3.4.3 Client programs with a local connection to openUTM**

Client programs with a local connection to openUTM must be recompiled and linked again.

#### **3.4.4 Linking UTM OSI-TP applications on Unix and Linux platforms:**

The following sequence must be adhered to when specifying the OSS libraries:  
 The library libossutm.so must be specified first followed by the library liboss.so.

If the sequence is not adhered to, the following startup error occurs:

P001 Error on OSS call (o\_create() -): - 1, 300, 199, 0  
K060 Application run aborted; reason = XINI06

### 3.4.5 Notes on improving performance

Measurements have shown that performance benefits if the KDCFILE is split when generated.  
(Parameter MAX PGPOOLFS=number or MAX RECBUFFS=number)

### 3.4.6 Notes on a sample application for UTM-Cluster applications

The following must be taken into account when installing a sample application for a UTM node:

- For a sample application the conversion of an installed UTM node application into a stand-alone application is not supported.
- A filebase directory for a node application and a filebase directory for a stand-alone application must not be created in the file tree under the same superordinate directory.

## 3.5 Discontinued functions and those to be discontinued

### 3.5.1 Discontinued functions

XA start parameters:

The plain text specification of the user ID in the open string of start parameter file is no longer supported.

### 3.5.2 Functions to be discontinued

- Multi-threaded net connection:  
From now on only multi-threaded network connection is supported on Unix, Linux, and Windows systems. The generation operand MAX NET-ACCESS is consequently no longer supported.
- 32-bit UTM applications on Unix, Linux and Windows systems:  
This version supports running of UTM applications in 32-bit mode on Unix, Linux and Windows systems for the last time.

## 3.6 Incompatibilities

- Administration:  
The start of utmmain has to occur from the application directory (filebase). This is necessary because all files, created by openUTM (traces, ...), are generated under the application directory.
- Command interface administration:  
The layout of some output screens of KDCINF has changed to output fields with more digits. This applies to the output of KDCINF LTERM, KDCINF LTAC and KDCINF CON.

The alignment of the fieldnames of the command KDCINF USER in the header line was corrected. Application programs, that evaluate the outputs of the KDCINF command, have to be adapted to the new layout if necessary.

- Messages:  
With openUTM V6.4 the openUTM include directory has to be specified for compilation of a message module created by a user.

## 3.7 Restrictions

### 3.7.1 Restrictions in UTM-Cluster applications

None

### 3.7.2 General restrictions

- Operating an openUTM application  
On Windows 64-bit platforms the PCMX functionality TNS is no longer supported. I. e. all necessary address information for the communication has to be specified at the generation with KDCDEF.
- Notes on using the sample application:  
No warranty is offered for the sample application and no service commitment is entered into.
- On AIX systems, the UTM system modules can only be linked in statically. This is the same as for predecessor versions of UTM V6.4A.

## 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
- Versions/correction statuses of the software involved
- Exact details on the computer type

All error documentation should be as complete as possible. The following error documentation is required:

- UTM dumps for all work processes and the associated gcores. These files should be available as binary files, i.e. not in print-edited form
- SYSLOG file(s)
- stdout/stderr logs of the UTM processes
- KDCDEF generation, start procedure and start parameter
- core files with the associated phases (utmwork) and shared objects. The shared objects can be determined using "ldd utmwork"
- Linker and compiler lists

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 other node applications
- The start procedure and the procedures specified during generations as EMERGENCY-CMD and FAILURE-CMD

An attempt should be made to reproduce the errors using static libraries.

Procedure in the event of errors:

- Analyze the PENDER dump
- Reproduce the error using a suitable debugger such as dbx, gdb
- Determine the call hierarchy for the core using a debugger

If the application terminates abnormally, the UTM dumps and gcores of all processes must be saved. If possible, the termination should be reproduced with TESTMODE=ON (start parameter).

Termination with signals

If a PENDER dump occurred with 70Z/XT10 or XT11 or if the application terminated with SIG010/SIG011 (SIGBUS/SIGSEGV signal), UTM signal handling should be deactivated with the start parameter START STXIT=OFF so that a core dump will immediately be generated when the faulty command is issued.



Before the application is restarted again, it is absolutely necessary to call `kdcrem` in order to delete or reset any semaphores and shared memories which may still be present as well as any status information on the application in the `<utmpfad>/applfile`.

The following additional documentation can also be created in the event of errors relating to the openUTM network connection:

- Messages from the UTM network processes in `stdout/stderr`
- CMX traces
- OSS traces
- UTM-BCAM trace
- Conversion file for containing entries for mapped host names
- In the case of heterogeneous connections, generation information and trace from openUTM LU6.2 and its SNA components and from the IBM SNA system

For details on creating the UTM-BCAM traces and the OSS traces, refer to the manual "Messages, Debugging and Diagnostics".

The following additional documentation can also be created in the event of errors relating to databases:

- XA debug trace
- For further documentation, see the relevant Release Notice for the database system

Following startup errors (message K049), for instance with insert 40 / 32, the UTM tool `kdcrem` must be called before the program is restarted.

## 4 Hardware support

Support is provided for the hardware, on which the mentioned operating system versions can run. This includes all systems based on Intel x86 technology, such as laptops, PCs, PRIMERGY systems; Itanium-based systems; SPARC systems, e.g. PRIMEPOWER systems and other Unix systems: IBM pSeries; HP PA-RISC, e.g. series 9000; other platforms on request.

CPU at least 250 MHz, RAM at least 256 MB

UTM-Cluster applications:

- A network file system/service (NFS) is necessary for the operation of UTM-Cluster applications
- openUTM (Solaris systems):  
Nodes of a UTM-Cluster application can be systems with different Solaris versions, but standardized addressing (either 64-bit or 32-bit). It is not possible to use nodes with other operating systems (Linux, BS2000)
- openUTM (Linux systems):  
Nodes of a UTM-Cluster application can be systems with different Linux versions, but standardized addressing (either 64-bit or 32-bit). It is not possible to use nodes with other operating systems (Unix systems, other Linux distributions, BS2000)