Fujitsu openUTM Enterprise Edition V6.1 Software

High-end Transaction Processing Platform

openUTM Enterprise Edition

openUTM Enterprise Edition on Unix systems, Linux and Windows is the transaction processing platform for high-end requirements. It combines old and new applications for business processes with up to date technologies and tools. openUTM provides effective support for access via the web and for electronic commerce. openUTM Enterprise Edition provides comprehensive transaction security for data, programs, message queues and client/server communication. openUTM integrates heterogeneous environments (BS2000/OSD, Unix, Linux and Windows platforms, databases and networks). Additionally Distributed Transaction Processing with applications on IBM systems (e.g. CICS) or systems based on OSI-TP is possible.

openUTM Enterprise Edition ensures that the load on available resources is ideally distributed and offers a continuous expansion path culminating in extremely large and complex multi-tier configurations.

openUTM Enterprise Edition V6.1

- Smart transition from stand-alone applications to cluster even for applications which are cluster-technologically sophisticated, e.g. using global UTM storage areas (GSSB and ULS).
- Cluster support even for dialog services which require restart: dialog services from users which are generated using "RESTART=YES" can be continued on another node.
- The graphical administration workplace WinAdmin has been reimplemented in Java technology and has been functionally enhanced.
openUTM provides a firm foundation for client/server architectures
Large numbers of clients (up to 500,000) send requests to servers which must be able to respond with maximum speed. openUTM enables effective processing of these requests, e.g. by using multiprocessing and multi-threading techniques and by load balancing across several parallel processes, thus making optimum use of multiprocessor architectures.

The openUTM local client enables graphical user interfaces to be connected to openUTM server applications. openUTM clients on Unix, Linux and Windows platforms connected remote via a network are available with two carrier systems (UPIC, OpenCPI) with different functionality. For Java clients there is a component of the product BeanConnect which enables the connection to openUTM (see below).

openUTM links mainframes with Unix, Linux or Windows systems
openUTM is available on BS2000/OSD, Unix, Linux, and Windows systems which are common source. openUTM servers on different computers with different hardware and software platforms are able to communicate with each other. Communication is across hardware and application boundaries with transaction integrity secured (two-phase commit).

Client/Server communication can likewise be fully transaction-secured or, as it is sufficient for pure dialog operation, be secured with suitable restart functions in the server.

openUTM embodies the classic ACID properties of transaction processing in cooperation with database systems
A transaction involving data access and processing is processed by openUTM in conjunction with a data management system designed to preserve transaction integrity. ACID is the acronym for Atomic, Consistent, Isolation, and Durable. The ACID properties are also guaranteed for the communication with other applications via LU6.1, LU6.2 and OSI TP.

openUTM can also accommodate access to different database systems in the course of a single transaction. To link data management systems providing transaction integrity to the TP monitor transaction, Open Group defined the XA interface and this is used by openUTM. Most of the database systems (Oracle, Informix etc.) and other products (ISAMXXA, MQSeries) provide this interface. The SESAM/SQL and UDS/SQL database systems have a comparable interface in terms of its functionality.

openUTM guarantees that a transaction is processed completely or not at all. Conversations within a transaction and chained transactions can take place. If the connection is lost, openUTM restores the status that existed when the last transaction was committed and the context of the chained transaction. By choosing not to enable the restart functions it is possible to suppress the write-back of backup information (may be appropriate for example in information-only applications). The individual transactions are isolated from one another and do not affect or interfere with one another even where there is a high degree of concurrency.

openUTM delivers portable easy-to-build applications
openUTM has easy to learn programming interfaces for writing user programs. The compatible interface KDCS (DIN 66265) contains calls for program management, data communication, memory management and user logging; it also contains the associated data structures in the C, C++ and COBOL environments.

For building portable applications, openUTM also offers the XATMI and CPI-C communication interfaces and the TX transaction interface from the Open Group.

Testing and diagnosis are supported by clear, well-presented storage-dumps. Productive applications can be tested with the usual debuggers. A sample application enables easy entry to OLTP operation with openUTM and gives a frame for the development of individual applications.

Printer spooling is supported. Printers can be combined into printer groups, with output to these groups being routed automatically for load balancing.

openUTM applications can be created in full or in part with the aid of popular tools such all OO design tools that generate C++ code, NetExpress (Micro Focus), Microsoft Visual Studio, Oracle Solaris Studio (formerly Sun Studio) and others. XML for openUTM can be used to submit and receive data in heterogeneous environments using XML.

openUTM is easy to use and highly effective in operation
The graphical administration workbench openUTM-WinAdmin on Windows makes administration so simple:

- openUTM applications can be administrated from a central point.
- Full compatibility with the legacy interfaces
- High availability thanks to dynamical administration.

The openUTM applications may be distributed in a network and can run on different platforms.

WinAdmin communicates in parallel with openUTM applications and runs as a pure Java application e.g. on Windows.

openUTM allows round-the-clock (7x24) operation
The openUTM application can be dynamically administrated and generated locally or in a client/server environment. New or updated programs can be swapped in and out during live operation.

The openUTM application is independent of its environment, which means that the environment can change without the application programs having to be changed. Transactions and application data are transferred from one application run to the next even after changes to the configuration. Journal information (user log) can be written from the application program with transaction security, and system information (system log) can be evaluated by the administrator. Program errors do not put down roots and the entire application does not crash because of a single program error.

http://ts.fujitsu.com/openUTM
Cluster support
Instead of a stand-alone application several identical copies of a UTM application in a multiple computer configuration can be consolidated to form a UTM-Cluster application. A UTM-Cluster application affords advantages in load balancing and high availability:
- Principal high availability functions like application monitoring, online import of application data and online update of application programs and openUTM updates ensure high availability of the cluster applications for 7x24h operation.
- For the communication of clients with a cluster application an external load balancer can be used to balance the load on the individual application nodes. For the communication based on UPIC openUTM offers a UPIC load balancer for the UPIC clients.
- An UTM-Cluster application and an Oracle® RAC-Cluster configuration can be effectively integrated: Each UTM node can be assigned to a RAC node, while the other RAC nodes serve as failover nodes.
- To make the administration of an UTM-Cluster application comfortable, the graphical administration tool WinAdmin has been enhanced. You can administer a UTM-cluster application not only via the program interface for administration but also via the graphical administration interface WinAdmin. Depending on the administration task the effect of the administration task is either limited to the single application node on which you are signed on or global on all application nodes.

openUTM offers maximum protection against unauthorized access
openUTM is able to restrict access to applications, and certain processes within an application can be made available only to certain users or from certain clients. A sophisticated system of access authorizations is provided to meet the most stringent security requirements. Integration in a single sign-on concept is supported. Encryption technics (RSA 200-2048 bit; DES 200 bit/ AES 512-2048 bit) provide maximum protection against unwanted access.

openUTM enables optimum integration into an IBM environment
openUTM can communicate with TP monitor applications in the IBM environment across hardware and application boundaries, with transaction security (twophase commit). This form of processing is possible with IBM mainframe systems as openUTM supports SNA protocol LU6.1 directly and SNA protocol LU6.2 via the openUTMLU62 add-on product. This means that not only TP monitor applications can be used in the IBM environment (CICS/IMS) but CPI-C programs can be connected to openUTM.

openUTM offers transaction-secured and active message queuing
Integrated message queues make openUTM especially interesting for mobile devices or workflow management. The message queuing system in openUTM includes delayed and timed transmission, acknowledgments, error queues, part-message collections, active queues with automatic start of the desired service, queue administration, service and spoolout queues, restriction of queues and block-by-block transfer for printer output queues.

WebServices for openUTM (WS4UTM)
WS4UTM provides a tool offering a convenient method of making program units of a UTM application available as Web services. This is achieved by sending SOAP messages via Tomcat and Axis to openUTM. WebServices for openUTM (WS4UTM) consist of 2 components, WS4UTM Deploy and WS4UTM Axis. WS4UTM Deploy is a graphical deployment tool which allows to generate openUTM applications as web services and to deploy them on Axis.

openUTM complies with the recommendations and definitions of X/Open (The Open Group)
Like the Open Group model for distributed transaction processing, openUTM consists of the following:

Communication Manager
openUTM supports OSI TP and LU6, which means it can communicate with other open systems.

Transaction Manager
This operates locally using commit/rollback mechanisms and as a distributed application in a network (two-phase commit). Chained and isolated transactions are possible. The transaction is linked to the database by openUTM via an interface with the same functionality as the Open Group XA interface.

Resource Manager
This provides all necessary resources in such a way that transaction integrity is preserved. These resources include message queues, operating logs and storage areas (memory) allocated to conversations, programs, clients/terminals, the application or the user.

Application management
This starts, ends and manages applications (in addition to the model of the Open Group).
openUTM is part of the comprehensive openSEAS product suite

The innovative products of the openSEAS product suite utilize sophisticated openUTM technology:

**BeanConnect**

is a JCA (Java EE Connector Architecture) compliant adapter connecting openUTM applications to Java EE application servers.

**BizXML2Cobol**

From existing service definitions (as a WSDL description or XML schema file) BizXML2Cobol permits the creation of Cobol data structures 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) is also supported in SOA projects for the inclusion of existing program logic.

**WebTransactions,**

in combination with openUTM, enables modern web applications. Existing applications can be connected to the internet and integrated in portals without any modification. 'Any' in italics, because the entire server application is left as it is, but web presentation can be designed in many ways. Web hosting can be stored on the central host itself or on an independent web server.


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**Product Structure**

openUTM Enterprise Edition Version 6.1 is a software package consisting of the following usage rights:

- openUTM Enterprise Edition (Unix systems/Linux/Windows)
- openUTM Client (Unix systems/Linux/Windows); see separate data sheet
- openUTM Enterprise Edition/Client Crypt (Unix systems/Linux/Windows)
- openUTM-LU62 (Unix/Windows) V5.1; see separate data sheet

Licenses for this package are available for developing, testing and runtime or for runtime only. Runtime refers to the execution of the completed application, without any programming. Binding the application is permitted (incl. creation of KDCROOT and KDCFFILE).

Every system or partition where openUTM is installed and/or running requires a basic usage right plus usage rights for 1 user each equal to the number of concurrent users working with the system.

For distributed transaction processing additional licenses are available in 5 different levels depending on the number of connections in parallel between applications.

The following supplementary licenses are offered:

- Connection to IBM hosts via LU6.2
- Crypt for the use of the encryption function

The software is delivered together with the basic usage right on collective data media DVD. This basic license contains 2 rights of use for developing and testing.

The software XML for openUTM is an add-on to openUTM which is free of charge. Fujitsu does not accept obligation for bug-fixing. The software is obtainable via [http://ts.fujitsu.com/openutm](http://ts.fujitsu.com/openutm).

The software WebServices for openUTM (WS4UTM) is offered as project solution.

openUTM (BS2000/OSD) V6.1 is also part of the openUTM product line Version 6.1, but has its own product structure. See the separate data sheet.
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; SPARC systems, e.g. Sparc Enterprise Server and other Unix systems: IBM System p; HP PA-RISC, e.g. series 9000; other platforms on request. CPU at least 250 MHz, RAM at least 256 MB
For resource requirements see the release notice.

Cluster configuration:
A Network File System/Service (NFS) is necessary.
- openUTM (Solaris) cluster configuration: Nodes of a Solaris cluster can be systems with different versions of Solaris, but uniform addressing (either 64 bit or 32 bit). Other operating systems (Unix systems, Windows, BS2000/OSD) are not allowed.
- openUTM (Linux) cluster configuration: Nodes of a Linux cluster can be systems with Linux distributions, with different operating system versions, but uniform addressing (either 64 bit or 32 bit). Other operating systems (Unix systems, Windows, BS2000/OSD) are not allowed.

Solaris SPARC 32/64 Bit as of V10
Linux(SuSE) x86 32/64 Bit as of SLES 11, for UTM-cluster applications: Kernel as of 2.6.32.27-02.2.2
Linux(REDHat) x86 32/64 Bit as of of RHEL 6, for UTM-cluster applications: Kernel as of 2.6.32.27-02.2.2
HP-UX (PA-RISC) 32/64 Bit as of V11.31
HP-UX (Itanium) 32/64 Bit as of V11.31
IBM-AIX 32/64 Bit as of V5.3
Windows Server 2003 (32 Bit)
Windows Server 2003 R2 (32 Bit)
Windows XP (32 Bit)
Windows Vista (32 Bit)
Windows 7 (32 Bit)
Windows Server 2008 (32 Bit)

For global file management of the UTM cluster application NFS V4 is required.
For usage of openSM2: openSM2 as of V9

PCMX is required for communication via TCP/IP. The required versions of PCMX are included in the product DVD.

PCMX(Solaris) 6.0A80
PCMX(Windows) 5.0A60

Only in connection with openUTM the use of PCMX does not need to be licensed separately.

In case of distributed transaction processing the following partner application server are supported:
openUTM(BS2000/OSD) as of V5.3
openUTM Enterprise Edition (Unix systems, Linux, Windows) as of V5.3;
(Note: For connection to openUTM versions earlier than 5.3 Fujitsu does not accept any obligation for bug fixing. In case of a bug the customer should update the partner application to openUTM version as of 5.3.)
For client/server communication optionally:
openUTM-Client (Unix systems, Linux, Windows) as of V5.3 (contains carrier systems UPIC V5.3; openCPI V4.0); as of V6.0 for client-side load distribution in the cluster;
openUTM-Client (BS2000/OSD) as of V5.3; as of V6.0 for client-side load distribution in the cluster;
BeanConnect as of V2.1 (also contains the component openUTM-JConnect as of V2.1)
openUTM-WinAdmin as of V6.1

A C/C++ compiler is required for all Unix, Linux and Windows systems, for Windows Visual Studio 2005 or 2008;
COBOL-Compiler:
- development of Cobol UTM applications: MicroFocus Net Express as of V5.1 (Windows) and MicroFocus Server Express as of V4.0 (Unix systems, Linux);
- For runtime: Cobol runtime licenses from MicroFocus;

Datenbanksysteme:
On Unix/Linux systems, any of the following can be used:
- Oracle as of V10gR2
- INFORMIX as of V7.3 32-bit variant
- INFORMIX as of V9.4 64-bit variant
On Windows systems:
- Oracle as of 10gR2

For communication with IBM-SNA systems via LU6.2:
openUTM-LU62 (Unix systems, Linux, Windows) V5.1
and, depending on the operating system, the following third-party products:
Solaris:
- SNAP-IX ab Version 7.0.2.4; from Metaswitch Networks
Linux:
- IBM Communications Server for Linux as of version 6.2
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 ab V2.1.

**USER INTERFACE**
- English, German, user defined

**INSTALLATION**
- By the customer on the basis of the release notice

**DOCUMENTATION**
- Manuals (English and German) as PDF files on the product DVD, also available on the Internet via [http://ts.fujitsu.com/openutm](http://ts.fujitsu.com/openutm)

**DEMANDS ON THE USER**
- Knowledge of development of application programs on Unix systems, Linux, Windows and if necessary knowledge of the partner system.
- Knowledge of NFS in case of UTM-Cluster operation
- Knowledge of KDCS/XATMI/CPI-CTX interface.
- Knowledge of database systems

**TRAINING**
- For trainings see: [http://training.ts.fujitsu.com](http://training.ts.fujitsu.com)

**CONDITIONS**
- This software product is supplied to the customer under the conditions for the use of software products in return for a single payment.

**ORDERING AND DELIVERY**
- This software product may be obtained from your local Fujitsu regional office.
More information

Fujitsu platform solutions
In addition to Fujitsu openUTM, Fujitsu provides a range of platform solutions. They combine reliable Fujitsu products with the best in services, know-how and worldwide partnerships.

Dynamic Infrastructures
With the Fujitsu Dynamic Infrastructures approach, Fujitsu offers a full portfolio of IT products, solutions and services, ranging from clients to datacenter solutions, Managed Infrastructure and Infrastructure as a Service. How much you benefit from Fujitsu technologies and services depends on the level of cooperation you choose. This takes IT flexibility and efficiency to the next level.

Computing products
www.fujitsu.com/global/services/computing/
- PRIMERGY: Industrial standard server
- SPARC Enterprise: Unix server
- PRIMEQUEST: Mission-critical IA server
- ETERNUS: Storage system
- BS2000 mainframes

Software
www.fujitsu.com/software/
- Interstage: Application infrastructure software
- Systemwalker: System management software

More information
Learn more about Fujitsu openUTM, please contact your Fujitsu sales representative, Fujitsu business partner, or visit our website. www.ts.fujitsu.com/openUTM

Fujitsu green policy innovation
Fujitsu Green Policy Innovation is our worldwide project for reducing burdens on the environment. Using our global know-how, we aim to resolve issues of environmental energy efficiency through IT. Please find further information at: www.fujitsu.com/global/about/environment/

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