Datasheet
Fujitsu Software openUTM Enterprise Edition V7.0

FUJITSU

High-end Transaction Processing Platform

openUTM (Enterprise Edition)

openUTM Enterprise Edition on Linux and Windows systems is the transaction processing platform for high-end requirements. openUTM 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 Enterprise Edition integrates heterogeneous environments (BS2000, Unix, Linux and Windows systems, databases and networks). Additionally distributed transaction processing with applications on IBM systems (e.g. CICS) or systems based on OSI TP is supported by openUTM. 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 allows genuine 7x24 operation through maximum availability and online maintenance options like software upgrade and exchange of hardware. openUTM Enterprise Edition offers 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.

openUTM is part of the comprehensive openSEAS product offering.

openUTM (Enterprise Edition) V7.0A

Compared to the previous version V6.5, the current version has been extended by several functions, such as:

- **UTM application as HTTP server**
- **Encryption**
  The encryption functionality in UTM between a UTM application and a UPIC client has been revised. Security gaps have been closed, modern methods have been adopted and delivery has been simplified.
- **Access data for XA database connection**
  A modified but not yet activated username for the XA database connection can be read by administration (KDCADMI)
- **Reconnect for the XA database connection**
  If an XA action to control the transaction detects that the connection to the database has been lost, the system tries to renew the connection and repeat the XA action.

openUTM openSEAS

Features and Benefits

MAIN FEATURES	BENEFITS
SOLID CLIENT/SERVER ARCHITECTURES	
■ Load distribution on multiple processes	■ Processing of numerous requests at a time
■ Availability of client features	■ Graphical interfaces are possible by client functionality
■ Support of various platforms	■ Clients' connections on Windows or Unix and Linux platforms
LINK OF MAINFRAME WITH LINUX AND WINDOWS SYSTEMS	
■ Access via HTTP(S) protocol	■ Accessibility of the application via additional clients
■ Availability on various platforms	■ Communication over hardware and software boundaries
■ Transaction secured communication	■ Applications' consistency is maintained
■ Secured communication between client and sever	■ Fully transaction secured communication or restart
INTEROPERABILITY WITH DATABASE SYSTEMS	
■ Usage of XA interface by X/Open	■ Link to transaction secured data management systems
■ Availabilty of ACID properties of transactions	■ Transaction integrity on base of processing and data access
■ Useful usage of restart and save functions	■ Higher performance for pure retrieval transactions
SIMPLE AND PORTABLE APPLICATIONS	
■ Usage of compatible programming interface KDCS (DIN66265)	■ Available interfaces for program management, data communication and memory management
■ Usage of standardized programming interfaces, XATMI, CPI-C and TX	■ Availability of open standards
■ Availability of communication and transaction interfaces	■ Implementation of portable applications
■ Provision of diagnosis tools	■ Test and diagnosis possibilities of applications
■ Print support via spool also possible in groups	■ Automatic routing for output to groups
COMFORTABLE AND EFFECTIVE ADMINISTRATION	
■ Provision of a GUI for administration	■ Central administration of any distributed applications
■ Availabilty of a web based administration	■ Possible administration from any computer within the net
HIGH AVAILABILITY	
■ Dynamic generation and administration of applications	■ Warranty of 7 by 24 hours operating
■ Cluster support of identical UTM applications	■ Load distribution and High Availabilty
■ Recovery of an abnormally ended node application	■ Release of existing locks and availabilty
SECURITY	
■ Configuration of access rights	■ Restricted access for certain user from certain client
■ Support of encryption techniques	■ Protection against unauthorized access by cryptographical means
■ Transaction secured processing	■ Data and applications consistency is ensured
MISCELLANEOUS	
■ Compliance with X/Open model of transaction processing	■ Required system parts are available (Communication, Transaction und Resource Manager, Application Management)
■ Support of web services	■ openUTM applications can be used as web services
■ Transaction secured integration into IBM environment	■ Communication with TP monitor and CPI-C applications

Offering

openUTM provides a firm base 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 systems connected remote via a network are available with two carrier systems (UPIC, OpenCPIC) 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 Linux or Windows systems

openUTM is available on BS2000, Linux and Windows systems based on mainly common code and nearly identical functionality – other systems on request. 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.

UTM application as an HTTP server

A UTM application can also act as an HTTP server.

The methods GET, PUT, POST and DELETE are supported. In addition to HTTP, access via HTTPS is also supported.

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 Atomicity, Consistency, Isolation and Durability. 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. 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 allows 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. A UTM application can also act as an HTTP server. The methods GET, PUT, POST and DELETE are supported. In addition to HTTP, access via HTTPS is also supported. Testing and diagnosis are supported by clear, well-presented storage-dumps. Productive applications can be tested with the usual debuggers. Printer spooling is supported. Printers can be combined into printer groups, with output to these groups being routed automatically for load balancing. 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 WebAdmin makes administration so simple:

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

The UTM applications can be distributed in the network and run on different platforms.

openUTM-WebAdmin communicates with the UTM applications, runs on a web server and can be accessed from any other computer via a browser.

openUTM allows round-the-clock (7x24) operation

The UTM 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 UTM 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.

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.

For the communication of a UTM application with a UTM cluster application via LU6.1 and OSI-TP openUTM allows load balancing using LPAP bundles.

A 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.

If for an abnormally terminated node application a warm start is not directly possible on its own node computer, a node recovery can be performed for this node on a different node of the UTM cluster. In this way locks, which are held by the failed node application, can be released so as not to unnecessarily impair the ongoing UTM cluster application.

You can administer a UTM cluster application not only via the program interface for administration but also via the graphical administration interface WebAdmin. 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 techniques of the different levels, Level 3/Level 4 with RSA/AES and Level 5 with AES-GCM, ensure the highest possible security against unwanted access.

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, WS4UTMDeploy and WS4UTMAxis.
WS4UTMDeploy is a graphical deployment tool which allows to generate UTM applications as web services and to deploy them on Axis.
WS4UTM Axis is a class library loaded by Axis. It manages the communication of client and UTM service.

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 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.
For further information please see
fujitsu.com/emeia/openseas

Product Structure

openUTM Enterprise Edition Version 7.0 is a software product consisting of the following usage rights:

- openUTM Enterprise Edition
  (Linux, Windows systems)
- openUTM Client: Supplement to openUTM for client/server communication; the right of usage must be ordered separately, see own data sheet.
- openUTM-LU62 (Linux, Windows systems) ; the right of usage must be ordered separately, see own data sheet.

Usage rights are offered for development, test and operating. Operating stands for use of the application but no development. Binding is permitted (incl. generation of KDCROOT and KDCFILE).
For each system or partition where openUTM is installed and/or runs a base usage rights is needed plus usage rights per user in the number of simultaneously accessing users.
For distributed processing additional usage rights in 5 different instances exist depending on the number of parallel connections between the applications.
Optionally further usage rights exist:

- Connection to IBM systems via LU6.2

The software is delivered on a media kit CD together with base usage right. Base usage right includes two licenses for development and test.

openUTM WebAdmin is included in openUTM Enterprise Edition.
It is available for download at fujitsu.com/emeia/openseas .
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 is obtainable via fujitsu.com/emeia/openseas
The software WebServices for openUTM (WS4UTM) is offered as project solution.

- The following additional products are also part of the openUTM product line Version 7.0, but have their own usage rights:
  openUTM (BS2000) V7.0 with its own product structure, see own data sheet
  openUTM (BS2000) Client V7.0 with its own product structure, see own data sheet

Technical Details

Technical Requirements Hardware

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;
further platforms on request.
CPU at least 250 MHz.
For resource requirements see the release notice.

Technical Requirements Software

Linux(SuSE) x86 64 Bit as of SLES 12
Linux(RedHat) x86 64 Bit as of RHEL 7.8
Windows 10 64 Bit, Windows 11
Windows Server 2019 / Windows Server 2022

Cluster configuration:

A Network File System/Service (NFS V4) is required.
openUTM (Linux) cluster configuration:
Nodes of a Linux cluster can be systems with Linux distributions, with different operating system versions, but uniform addressing (64 bit). Other operating systems (Windows, BS2000 systems) are not allowed.

PCMX is required for communication via TCP/IP. The required versions of PCMX are included in the product CD.
PCMX(Linux x86) 6.0B33
PCMX-64(Windows) 5.0B20
Only in combination with openUTM the use of PCMX does not need to be licensed separately.

Fujitsu doesn't accept any obligation for bug fixing if any error occurs by using releases of compiler and runtime systems for which Fujitsu doesn't take any maintenance obligation. In this case it is recommended to upgrade to the compiler and / or runtime systems of a newer release.

COBOL support:
For development and operating of Cobol UTM applications:

1. Micro Focus Visual COBOL as of V5.0, V6.0 and V7.0
   Licenses for development and operating are needed
   Note: please consider new openUTM system processes at the number operating licenses!

Database systems:
On Linux and Windows systems, any of the following can be used:
Oracle as of V19c
Further database systems supporting X/Open XA interface

In case of distributed transaction processing the following partner application server are supported:
openUTM(BS2000) as of V7.0
openUTM Enterprise Edition (Unix, Linux, Windows systems) as of V7.0;

For communication with IBM-SNA systems via LU6.2:
openUTM-LU62(Unix, Linux, Windows systems) V5.1 and, depending on the operating system, the following third-party products:
Operating system Linux:
IBM Communications Server for Linux as of version 6.4
Operating system 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 V6.5.

For client/server communication optionally:
openUTM-Client (Unix, Linux, Windows systems) as of V7.0 (contains carrier systems UPIC as of V7.0; openCPIC V4.0);
openUTM (BS2000) Client as of V7.0
BeanConnect as of V6.5 (also contains the component openUTM-JConnect)

A C/C++ compiler is required for all Linux and Windows systems, for Windows Visual Studio 2010 or higher; for the usage of QuickStartKit on Windows Visual Studio 2010 is required.

User interface	
Languages	Commands in English, message texts in German/English
Installation	
Installation	By the customer according to the release notice
Documentation	
Manuals	Manuals (German and English) as files in PDF format; Files via Internet https://bs2manuals.ts.fujitsu.com/
Demands on the user	
Demands on the user	Knowledge of development of application programs on Linux, Windows and if necessary knowledge of the partner system. Knowledge of NFS in case of UTM-Cluster operation Knowledge of KDCS/XATMI/CPI-C/TX interface Knowledge of database systems Knowledge of HTTP communication in case of HTTP server functionality
Training	
Training	Courses are carried out in the Fujitsu Academy CE under the applicable conditions.

Purchasing

Ordering and delivery	This software product may be obtained from your local Fujitsu Technology Solutions GmbH regional office.

Fujitsu Platform Solutions

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

Fujitsu Portfolio Built on industry standards, Fujitsu offers a full portfolio of IT hardware and software products, services, solutions and cloud offering, ranging from clients to datacenter solutions and includes the broad stack of Business Solutions, as well as the full stack of Cloud offerings. This allows customers to select from alternative sourcing and delivery models to increase their business agility and to improve their IT operation's reliability.

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Learn more about Fujitsu Software openFT, please contact your Fujitsu sales representative or Fujitsu Business partner,or visit our website.

https://www.fujitsu.com/emeia/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 http://www.fujitsu.com/global/about/environment

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