
FUJITSU Software openUTM Client (BS2000, Unix, Linux and Windows systems)
Carrier System UPIC

Version 6.5A
April 2018

Release Notice

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1 General

This Release Notice relates to the following

- *1 - on BS2000 systems: FUJITSU Software openUTM Client (BS2000) V6.5A and FUJITSU Software openUTM Client (BS2000) V6.5A with Encryption.
- *1 - on Unix, Linux or Windows systems: FUJITSU Software openUTM Client V6.5A and FUJITSU Software openUTM Client V6.5A with Encryption as part of openUTM Client as well as a local or remote client in the openUTM Enterprise Edition.

*1 The products are uniformly called openUTM Client and openUTM Client with Encryption in the following.

*1 openUTM Client V6.5A and openUTM Client V6.5A with Encryption are available for the operating systems FUJITSU BS2000 and for other commonly available Unix systems (Solaris, HP-UX, AIX), as well as Linux and Windows systems.

openUTM Client programs serve as clients for openUTM server installations on all existing platforms.

*1 This Release Notice is a summary of the major extensions, dependencies and operating information for openUTM Client V6.5A and openUTM Client V6.5A with Encryption.

*1 The content refers to release level: April 2018.

*1 All changes since the release level from December 2017 are marked in the left margin.
*1 - Marking *1 = release level V6.5A10 from April 2018.

All openSEAS product Release Notices including this one are available via the Internet under:
<http://manuals.ts.fujitsu.com>

Any changes too late to be included in the documentation are noted in this file and published as part of a correction release.

If you skip one or more previous versions when you install this product, you must note 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.

Function overview:

The UPIC carrier system allows a client application in all above-named operating systems to communicate with a server application running under openUTM in BS2000 and/or Unix, Linux or Windows systems. For the purposes of communication, openUTM server programs and client programs that are based on the UPIC carrier system can use the program interfaces CPI-C and XATMI. These interfaces comply with the X/Open definitions.

*1 With these interfaces, you can program the same way in the client as well as in the server. Furthermore, openUTM provides the ability to program in the server with KDCS and in the client with CPI-C. The interfaces can be used in a C/C++ environment and in a COBOL environment.

1.1 Ordering

The product can be ordered from your local distributors.

The product is subject to the general terms and conditions of the software product purchase, maintenance, use and service agreement.

1.1.1 Licenses

*1 The licenses are an integral part of the contract that you concluded with Fujitsu Technology Solutions when you purchased openUTM Client and openUTM Client with Encryption.

*1 openUTM Client V6.5A and openUTM Client V6.5A with Encryption are licensed products, the use of which requires licenses.

In the openUTM server application environment in BS2000 systems the openUTM Client licenses must be purchased for the number of users simultaneously accessing the server.

openUTM Client licenses must be purchased for one user each for development, testing and runtime or for runtime only. There are separate runtime licenses for the UPIC carrier system or in conjunction with the carrier systems openCPIC and UPIC. The software is purchased with a software package that contains the product DVD and a user license for development.

In the openUTM server application environment in Unix, Linux or Windows systems the openUTM-Client licenses are included in the licenses for openUTM Enterprise Edition. The software is supplied on the openUTM EED-DVD.

*1 For the use of encryption, the data carrier openUTM EED-DVD Crypt has to be obtained. With the
*1 installation from the data carrier the CRYPT functionality is activated.

*1 Export restrictions apply to delivery of openUTM Client (BS2000) V6.5A with Encryption. If
*1 openUTM Client (BS2000) V6.5A with Encryption is to be used outside Germany a special export
*1 permit must be obtained in advance.

1.2 Delivery

*1 The openUTM Client (BS2000) V6.5A and openUTM Client (BS2000) V6.5A with Encryption files are supplied via SOLIS.

The current file and volume characteristics are listed in the SOLIS2 delivery cover letter.

openUTM Client (Unix, Linux and Windows systems) V6.5A is supplied on one openUTM EED-DVD which contains additional software products from the openUTM product family and communication products.

Additional licenses must be purchased for these products, insofar as they are not included in the licenses already purchased.

*1 The same applies to the delivery of openUTM Client (Unix, Linux and Windows systems) V6.5A
*1 with Encryption, which is delivered on a separate openUTM EED-DVD Crypt. This DVD contains all
*1 the components of the openUTM EED-DVD plus the CRYPT functions.

*1 The openUTM EED-DVDs must be ordered separately.

*1 **1.2.1 Delivery components of openUTM Client (BS2000) V6.5A and openUTM Client (BS2000) V6.5A with Encryption**

*1 The openUTM Client (BS2000) V6.5A and openUTM Client (BS2000) V6.5A with Encryption delivery components are listed below.

Files: Contents:

Module libraries:

SYSLIB.UTM-CLIENT.065 UPIC library
 SYSLIB.UTM-CLIENT.065.WCMX UPIC library, transport system PCMX

*1 SYSLNK.UTM-CL-CRYPT.065 for openUTM Client (BS2000) with encryption
 *1 SYSLIB.UTM-CL-CRYPT.065.NOCRYPT for openUTM Client (BS2000) with encryption

Sample programs / Utility routine:

SYSLIB.UTM-CLIENT.065.EXAMPLE sample programs

*1 Installation:

SYSSII.UTM-CLIENT.065 Structure information for IMON (for openUTM Client (BS2000) without encryption)
 SYSSII.UTM-CL-CRYPT.065 Structure information for IMON (for openUTM Client (BS2000) with encryption)

*1 **1.2.2 Delivery components of openUTM Client (Unix and Linux systems) V6.5A and openUTM Client (Unix and Linux systems) V6.5A with Encryption**

- COBOL COPY elements <upicpath>/copy-cobol85
- <upicpath>/netcobol
- C header files <upicpath>/include
- makefile sample <upicpath>/shsc/upic.m
- (Example of linking an UTM-UPIC program)
- Sample program <upicpath>/sample
- (incl. makefiles and runnable programs)
- Link libraries <upicpath>/sys
- Link libraries on
- Systems with POSIX threads <upicpath>/sys
- Source file for the conversion tables <upicpath>/kcsaeea.c

for XATMI

- COBOL COPY elements <upicpath>/xatmi/copy-cobol85
- <upicpath>/xatmi/netcobol
- XATMIGEN utility routine <upicpath>/xatmi/ex
- C header files <upicpath>/xatmi/include
- Link libraries <upicpath>/xatmi/sys

openUTM Client will run under 32-bit and 64-bit Unix- and Linux systems. Both variants are installed in a single installation operation. The files listed above are present twice: under <install-PATH>/32/... for the 32-bit variant and under <install-PATH>/64/... for the 64-bit variant.

upicpath has the following equivalent:

- <upicpath> == <install-PATH>/32 or
- <upicpath> == <install-PATH>/64

1.2.3 Delivery components of openUTM Client (Windows systems) V6.5A and openUTM Client (Windows systems) V6.5A with Encryption

Runtime system:

upicw32.dll or upicw64.dll
 upicws32.dll or upicws64.dll
 utmcnv32.dll or utmcnv64.dll
 upicw.dll
 utmcnv32.dll or utmcnv64.dll
 upcryp32.dll or upcryp64.dll

These runtime libraries are located in the directory <install-PATH>\sys.

Development system:

upicw32.lib or upicw64.lib	Link library	<install-PATH>\sys
upicws32.lib or upicws64.lib	Link library	<install-PATH>\sys
upicw.lib	Link library	<install-PATH>\sys
upic.h	C header file	<install-PATH>\include
kcsaeea.c	ASCII-EBCDIC conversion table	<install-PATH>\utmcnv
resource.h	C header file	<install-PATH>\utmcnv
CMCOBOL	COBOL COPY element	<install-PATH>\copy-cobol
CMCOBOL	COBOL COPY element	<install-PATH>\netcobol

Examples:

Upicfile	Example of a side information file various sample programs	<install-PATH> <install-PATH>\sample
UnInstall.cmd	Uninstallation program	<install-PATH>

for XATMI

Runtime system:

xatmigen.exe	XATMIGEN utility	<install-PATH>\ex
xtclt32.dll or xtclt64.dll	Runtime library	<install-PATH>\sys

Development system:

xtclt32.lib or xtclt64.lib	Link library	<install-PATH>\sys
xatmi.h	C header file	<install-PATH>\include
xatmidef.h	C header file	<install-PATH>\include

Examples:

Various sample programs	<install-PATH>\samples
-------------------------	------------------------

Note:

The openUTM client functions are available as 32-bit program and 64-bit program on 64-bit Windows systems. A prompt is issued on these systems during the installation about the version to be installed

the 32-bit version under <install-PATH>\upicw32 or
 the 64-bit version under <install-PATH>\upicw64

If you wish to use both versions on a computer, e.g. for test purposes, you can install both versions consecutively.

1.3 Documentation

1.3.1 Availability

The documentation is available online in the Internet under <http://manuals.ts.fujitsu.com>

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 or can be obtained in printed form from bookstores quoting the ISBN number.

2 Software extensions

2.1 New functions in openUTM Client V6.5A

2.1.1 UPIC Routing

A list of partner applications can be specified in the program or via static configuration in the upicfile. This enables the implementation of, e.g., flexible addressing or load balancing. Up to now, this type of functionality was only offered for the static configuration of a UTM cluster application. The following interfaces have been changed to support this:

- upicfile: New code ND that can be used to define a list of standalone UTM applications.
- CPI-C interface:
 - New call `Set_Partner_Index` for defining the index for a list entry. An additional partner application can then be defined in the program.
 - New call `Get_Max_Partner_Index` for querying the maximum index of the list of partner applications.

2.1.2 Other changes

- 64-bit support of openUTM client for the HP Itanium and AIX platforms.
- OpenUTM client supports hostnames that can be up to 64 characters in length
- Support of long passwords for UTM user IDs.

The following interfaces have been changed to support this:

- CPI-C calls `Set_Conversation_Security_Password` and `Set_Conversation_Security_New_Password`:
Both the existing password and the new password for the UTM user ID can be up to 16 characters in length.
- XATMI call `tpinit`:
The password for the UTM user ID can be up to 16 characters in length.

- Code conversion tables
For the code conversion between ASCII-compatible codes and EBCDIC codes on the client side, openUTM Client provides eight tables for code conversions on all platforms (two 8-bit conversions and two 7-bit conversions).
By default, an 8-bit conversion between ISO8859-i and EBCDIC.DF.04-i is used on BS2000, Unix and Linux systems and an 8-bit conversion between Windows 1252 and EBCDIC.DF.04-F is used on Windows systems.
The tables can be adjusted. Only one table can be used in a client application at a time.
- Encryption
 - BS2000 systems:
The encryption functionality of the BS2000 system is used.
 - Unix, Linux and Windows systems:
The functionality of the OpenSSL library is used.
- Installation on Unix, Linux and Windows systems – logging files
Both, in the installation directory `<install-PATH>` and the sub directories `<install-PATH>/32` and `<install-PATH>/64`, the logging files `utm.log` and `upic.log` exist.
The logging file includes “installation successfully” only, if all actions of the 32 and 64 bit installation were successful.

3 Technical information

3.1 Resource requirements

Hard disk space for the installation:

	BS2000	:	approx. 5,6 MB (2800 PAM PAGES)
			without encryption components
*1		:	approx. 600 KB (300 PAM PAGES)
*1			Encryption components
	SOLARIS	32/64-bit:	< 50 MB
	LINUX	32/64-bit:	< 10 MB
	HP-UX(Itanium)	32/64-bit:	< 10 MB
	IBM-AIX	32/64-bit:	< 10 MB
	Windows	32/64-bit:	< 10 MB

3.2 Software configuration

openUTM Client (BS2000) V6.5:

	BS2000	as of V10.0	
	DSSM	as of V4.3B	
	JV	as of V15.0A	
	openNetServer	as of V3.5A	contains BCAM, CMX, DCAM, ONETSERV, SOCKETS, VTSU-B, XHCS for Unicode support etc.
	CMX	as of V3.6A	
	CRTE	as of V10.0A	
	C/C++ (BS2000)	V3.2A	
	COBOL85	as of V2.3A	
	COBOL2000	as of V1.5A	
*1	openUTM-CL-CRYPT	V6.5A, if encryption is used in UTM applications	

openUTM Client (Unix, Linux systems) V6.5

	Solaris	32/64-bit	as of V10
*1	Linux(SuSE)	32/64-bit	as of SLES 11 PL4
*1	Linux(RedHat)	32/64-bit	as of RHEL 6.5
	HP-UX (Itanium)	32/64-bit	as of V11.31
	IBM-AIX	32/64-bit	as of V6.1

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

*1	PCMX(Solaris)	6.0B30
*1	PCMX(Linux)	6.0B30
*1	PCMX(HP-UX)	6.0B30
*1	PCMX(AIX)	6.0B30

The use of PCMX is only license-free in connection with openUTM Client.
When using openUTM Client V6.5 with runtime system CMX, the version supplied with the DVD has to be used.

- *1 For the use of the openUTM Client Crypt component on Unix/Linux systems the software openssl
- *1 V1.0 is required.
- *1 See also www.openssl.org.

openUTM Client (Windows systems) V6.5

Windows	32/64-bit	as of Windows 8.x
Windows Server	32/64-bit	as of Windows Server 2012

Visual Studio 2005 or higher

- *1 PCMX32 as of V5.0B20 (32-bit)
- *1 PCMX64 as of V5.0B"0 (64-bit)
- *1 For the use of the openUTM Client Crypt component on Windows systems the software openSSL V1.0 is required.
- *1 See also www.openssl.org.

For Client-Server communication:

openUTM(BS2000) as of V6.3

openUTM as of V6.3
(Unix, Linux and Windows systems)

3.3 Product installation

3.3.1 BS2000 systems

The product installation of openUTM Client (BS2000) has to be executed with the Installation monitor IMON. The information of the installation has to be followed as described in the supply letter and the manual of the product.

The necessary inputs and the process of the installation with IMON are described in the manual of IMON.

3.3.2 Unix/Linux systems

openUTM Client (Unix systems/Linux) is installed using the installation methods usual on the computer system concerned.

- *1 pkgadd is used for installation on **Solaris systems**:
pkgadd -d <DVD>/<package>.pkg
- *1 rpm is used for installation on **Linux- systems**:
rpm -i --nodeps <DVD>/<package>.rpm --ignorearch [--prefix=<location>]
- *1 On **HP-UX systems** installation is started by calling:
./xpininstall.sh
- *1 On **AIX systems** installation is started by calling:
./xpininstall

*1 **Installation together with an openssl environment on Unix/Linux platforms**

*1 The openssl software has to be installed before installing openUTM Client with Encryption. Please
*1 check whether a library named *libcrypto.so* exists under */usr/lib* and */usr/lib64* after installing the
*1 openssl software. If there exists a library named *libcrypto.so.<version>* instead of it, you must set
*1 up a symbolic link:

*1 *ln -s libcrypto.so.<version> libcrypto.so*

*1 During the installation of openUTM Client with Encryption on Unix/Linux platforms the UPIC Encryp-
*1 tion library is linked with the openssl software, available on the target platform. This happens for
*1 the 32 bit runtime environment as well as for the 64 bit runtime environment.

*1 If during one of the linking actions the openssl software cannot be accessed, the encryption is not
*1 available for UPIC. In this case the result is „not successful“. Please analyze the content of the log-
*1 ging files *libupiccrypt.so.out* and *libupiccrypt.so.err* in the directory *<install-PATH>/sys/crypt*.

*1 As soon as the openssl software is available you can repeat the binding action:

*1 a) Login as root and change to the UPIC installation directory *<install-PATH>*.

*1 b) Execute the script *<install-PATH>/shsc/xpcrypt*.

*1 c) Check the linking logging files *libupiccrypt.so.out* and *libupiccrypt.so.err* in the directory *<install-
1 PATH>/sys/crypt.

3.3.3 Windows systems

*1 The installation is started by *utm.msi* or *utm-crypt.msi*.
The remainder of the procedure is self-explanatory.
The product must be installed under the Administrator account on Windows.

3 components are offered during installation:

- UPIC carrier system
- UPIC subcomponents
- XATMI

A "Details" button is provided for each of these components. Clicking this button shows the follow-
ing breakdown of the installation (subcomponents):

UPIC carrier system

- UPIC Runtime with PCMX
- UPIC Runtime w/o PCMX
- UPIC Development
- Samples

XATMI

- XATMI Runtime
- XATMI Development
- XATMI Sample

The UPIC carrier system and its subcomponent 'UPIC with PCMX' has installed by default.

If the component 'XATMI' is selected, the subcomponent 'XATMI Runtime' is automatically selected.

By default, the product is installed on the drive C into the following folder

Windows 64-bit system:

- 64-bit: "%ProgramFiles%\upicw64"
- 32-bit: "%ProgramFiles(x86)%\upicw32"

Windows 32-bit system:

- 32-bit: "%ProgramFiles%\upicw32"

*1 There exists a commandline option to install openUTM-Client V6.5A unattended ("silent installa-
*1 tion"). Further information can be found in the manual openUTM Client V6.5 for the UPIC Carrier
System.

The product can be uninstalled by calling UnInstall.cmd.
openUTM Client V6.5A can also be uninstalled from the Control Panel. The Control Panel is opened by selecting Start/Settings/Control Panel. Double-click on the "Add/Remove Programs" icon to open the Software Properties dialog box. Proceed as described in this dialog box.

Files and folders which were not created by the installation program are not deleted. These files and any superordinate folders must be deleted manually.

3.4 Product use

3.4.1 Notes for the migration to openUTM Client V6.5A

Any UPIC programs previously created will still run.
All other information relevant for using the product can be found in the manual openUTM Client V6.5 for the UPIC Carrier System.

3.4.2 Compilation, linking and starting in BS2000 systems

A client application can be linked with the BINDER. The SYSLIB.UTM-CLIENT.065 library contains a sample procedure, with which you can link a client application.

- *1 Dynamic loading of the UPIC libraries when starting the UPIC Client application is supported.
- *1 The benefit of dynamic loading is that you can choose whether the communication should be done over a socket connection or CMX connection and whether encryption shall be used.
- *1

The SYSLIB.UTM-CLIENT.065.EXAMPLE library that is supplied with the product contains the member UPTAC.C. This C source is a simple sample program for creating a client.

Note that the "partner name" in the upicfile must always be specified in two parts.

- *1 When installing openUTM Client (BS2000) with Encryption please note:
- *1 The module UPICNOENCR is contained in the system code of openUTM Client (BS2000) V6.5 as a proxy for the encryption code.
- *1 If you want to use the openUTM Client (BS2000) V6.5 with Encryption, you have to change following before you are linking your UPIC application:
- *1 In the openUTM Client library replace the module UPICNOENCR by the module
- *1 UPCENCR.
- *1 For this action the procedure SYSLIB.UTM-CLIENT.065(COPY-CLIENT-CRYPT) is
- *1 available.

3.4.3 Notes for use on Windows systems

Application programs must be compiled with the option UTM_ON_WIN32 and additionally with the option UTM_ON_WIN64 if UPIC 64-bit is used where windows.h must be included before upic.h or xatmi.h.

For UPIC, windows.h must also be included for console applications. If this is not done, various macros (VOID, WINAPI) used in upic.h or xatmi.h must be defined explicitly.

One of the libraries upicw32.lib respectively upicw64.lib, upicws32.lib respectively upicws64.lib or upicw.lib must be linked in when linking a UPIC application.

The library xtclt32.lib respectively xtclt64.lib must be linked in when linking an XATMI application.

For UPIC, the multithread-capable runtime libraries must be linked in.

*1 **3.4.4 Notes for use of openUTM Client with Encryption on Windows systems**

*1 When running an openUTM Client application it must be ensured, that the library libeay32.dll is
*1 found. If necessary the PATH variable has to be extended in an applicable manner.

3.4.5 Notes for use on Unix/Linux systems

The library <install-PATH>/sys/libutmconvt.so must be linked in when linking a UPIC application.

For linking and for starting the environment variable LD_LIBRARY_PATH or LD_LIBRARY_PATH_64 must be set to <install-PATH>/sys.

Hint for AIX systems:

The system library /usr/lib/libpthreads.a must be linked in when linking a UPIC application.

3.5 Discontinued functions (and those to be discontinued)

Following functions are supported for the last time:

- 32-bit operating
This version supports running of UPIC applications in 32-bit mode on Unix, Linux and Windows systems for the last time.
- TNS use
In openUTM Client V6.5A the TNS functionality will be supported the last time.
In following versions the address information must be specified completely in the UPICFILE or at the CPIC program interface.
- *1 • Encryption
*1 UPIC call *Set_Conversation_Encryption_Level* (CMSCEL):
*1 – Operand value encryption_level = CM_ENC_LEVEL_1
*1 – Operand value encryption_level = CM_ENC_LEVEL_2

3.6 Incompatibilities

not applicable

3.7 Restrictions

UPIC variation of interface CPI-C version 1:

openUTM Client V6.5A programs are supported only compatible to the object code, when the calls at the CPI-C interface are implemented with the semantic of CPI-C version 1.

A compilation of these programs with the header files of UPIC V6.5A is no more possible without program adaptations!

3.8 Procedure in the event of errors

The following information is required to pinpoint the causes of errors:

- exact description of the error situation
- version information of the software involved
- information about computer type

The following may be useful as error documentation:

- UPIC program as source
- Side information file (upicfile)
- UPIC phase with runtime environment
- UPIC trace files and UPIC logging file
- XATMI trace when using XATMI applications

For errors that occur in combination with the UTM application, the following additional UTM documentation is required:

- UTM-KDCDEF generation
- UTM/USER dumps
- SYSLOG

4 Hardware support

Support is provided for the hardware on which the operating system versions named in Chapter 3.2 can run. Included are:

All systems based on Intel x86 technology, e.g. laptops, PCs, PRIMERGY systems, Itanium-based systems, SPARC systems, e.g. SPARC Enterprise System

Other Unix systems:

- IBM pSeries
- ia64 HP Server, e.g. HP rx2800

Other platforms on request

2 GHz CPU or better, at least 256 MB RAM