

## Fujitsu Technology Solutions

DRIVE (BS2000/OSD)  
Version 3.1A10  
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Release Notice

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# 1 General

This Release Notice is a summary of the major extensions, requirements and operating information with regard to the delivery unit

DRIVE (BS2000 \*) V3.1A

The release level is that of April 2012

DRIVE V3.1A is the follow-up version to DRIVE/WINDOWS V2.2A

DRIVE is a fourth generation programming language (4GL) for creating and using commercial OLTP applications. In addition to SQL support, DRIVE provides a series of valuable programming functions that simplify the work of the developer when using low-level system interfaces to the transaction monitor or to the user interface systems. DRIVE also supports DVS access to SAM and ISAM files in new-style syntax. LEASY files continue to be accessed in old-style.

DRIVE programs written with DRIVE V5.1 run without modifications as old-style programs in DRIVE V3.1A.

This Release Notice is also supplied as a file in uppercase and lowercase. Customers will receive an updated version of this file should any subsequent changes be made.

T1 Changes will be marked with (T1).

To print this file, use

/PRINT SYSFGM.DRIVE.031.D,SPACE=E (German)

/PRINT SYSFGM.DRIVE.031.E,SPACE=E (English)

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## 1.1 Ordering

The software can be ordered from your local Fujitsu Technology Solutions distributors.

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

## 1.2 Delivery

The DRIVE V3.1A files are supplied via SOLIS.

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

The delivery contains the following files:

SYSLNK.DRIVE.031	DRIVE module library
SIPLIB.DRIVE.031	Library with special elements as follows: <ul style="list-style-type: none"><li>- Assembler sources with old-style DRIVE messages</li><li>- FHS format for DRIVE message line as well as user profile for preparing for use</li><li>- Macro (ALLEX) and source (EXTAB) for defining user exits</li></ul>
SYSFGM.DRIVE.031.D	Release Notice (German)
SYSFGM.DRIVE.031.E	Release Notice (English)
SYSRME.DRIVE.031.D	README file (German) containing new features in DRIVE V3.1A and other information
SYSRME.DRIVE.031.E	README file (English) containing new features in DRIVE V3.1A and other information

SSCM object file for the new-style DRIVE variant:

SYSSSC.DRIVE.031	Memory class 3/4-XS
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DSSM declarations for the old-style DRIVE variant:

SYSSSD.DRIVE.031	Memory class 3/4-XS
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SYSLIB.DRIVE.031	Library with the main module for report programs and printer profiles
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SYSLIB.DRIVE.031.TRACE	Library with the main module for report programs and printer profiles with TRACE option
SYSMES.DRIVE.031	Message file (MSGMAKER processing)
SYSPRC.DRIVE.031	Library with: <ul style="list-style-type: none"> <li>- Installation procedure</li> <li>- Examples for KDCFILE generation</li> <li>- Optional Reps</li> <li>- Procedure for creating the SSCM object file</li> <li>- Framework procedure for starting DRIVE</li> <li>- Installation framework procedure for merging with existing UTM applications</li> </ul>
SYSPRG.DRIVE.031	DRIVE system programs
SYSENT.DRIVE.031.DRICALHE	ENTER procedure to start DRICALHE
SYSENT.DRIVE.031.DRILOG	ENTER procedure to start DRILOG
SYSPRG.DRIVE.031.DRICALHE	DRICALHE utility program
SYSPRG.DRIVE.031.DRILOG	DRILOG utility program
SYSPRG.DRIVE.031.DRILOGP	DRILOGP utility program
SYSPRG.DRIVE.031.DRIENDE	DRIENDE utility program
SYSSII.DRIVE.031	File for product installation with IMON

### 1.3 Documentation

The manuals for the previous version also apply for DRIVE V3.1A. New features are described in the README file. The manuals are not part of the DRIVE delivery package and must be ordered separately.

List of manuals:

Title	Order number
DRIVE/WINDOWS V2.1 (BS2000) Programming System	U5068-J-Z125-3 U5068-J-Z125-3-7600 (English)
DRIVE/WINDOWS V2.1 (BS2000) Language Reference Manual	U5095-J-Z125-3 U5095-J-Z125-3-7600 (English)
DRIVE/WINDOWS V2.1 (BS2000) System Directory	U5642-J-Z125-3 U5642-J-Z125-3-7600 (English)
DRIVE/WINDOWS V2.1 (BS2000) DRIVE-SQL Statements for SESAM/SQL V2	U20069-J-Z145-3 U20069-J-Z145-3-7600 (English)
DRIVE V2.2 (BS2000/OSD) Supplement	U41135-J-Z125-1 U41135-J-Z125-1-76 (English)

## **2 Technical information**

### **2.1 Resource requirements**

#### **2.1.1 Memory requirements of a UTM application**

The minimum virtual address space required for new-style applications is:

SQL2: 14.6 MB, of which 3.55 MB can be loaded as shared.

The minimum virtual address space required for mixed mode (old-style and new-style):

SQL2: 16.4 MB, of which 4.66 MB can be loaded as shared.

The memory requirements in user address space can be reduced even further by shared preloading of additional components such as LMS or CRTE.

#### **2.1.2 Memory requirements of a TIAM application**

The minimum virtual address space required for new-style applications is:

SQL2: 9.75 MB, of which 3.55 MB can be loaded as shared.

The minimum required virtual address space for mixed operation (old-style and new-style):

SQL2: 11.4 MB, of which 4.66 MB can be loaded as shared.

The memory requirements in user address space can be reduced even further by shared preloading of additional components such as LMS or CRTE.

## 2.2 Software configuration

The following software is required for using  
DRIVE (BS2000) V3.1A:

	Operating system	as of BS2000/OSD V3.0 as of BS2000/OSD V3.1A (SR2000 - emulated operation) as of VM2000 V3.1
T1 T1 T1	Runtime system	as of CRTE V2.1 as of CRTE V2.7F in OSD V7.0 as of CRTE V2.8E in OSD V8.0 as of CRTE V2.9A in OSD V9.0
	DC interface	as of openUTM V5.0
	Format handling	as of FHS V8.2
	Editor	as of EDT V16.6
	Data access system	as of LMS V3.0 as of SESAM/SQL V2.2 as of SESAM/SQL V3.0 or V3.1 if new SQL statements are used LEASY V5.2 only old-style, optional
	Communication	BCAM V14 (for EURO support)
	Optional use:	
	Compiler	DRIVE-Compiler V3.1



## 2.3 Product installation

As of OSD-SVP V2.0 or BS2000/OSD V3.0, the installation monitor IMON must be used for installation.

The installation information in the delivery letter and the product manual must be noted in addition to the information in this Release Notice.

Parts of DRIVE can be loaded as shared. A SYSSC declaration file for class 4-XS for the new-style is supplied as well as one for class 4-XS for the old-style mode.

The message SCM4153 "Incompatible SSC-OBJ file SYSSSC.DRIVE.031 when creating the subsystem entry for the new-style subsystem DRIVE31" means that the SSCM version on the target system and the SSCM V2.3 with which the SSC-OBJ file was created are not compatible. For this reason, the creation procedure is supplied in addition to the SSC-OBJ file.

The creation procedure DRIPRC.SYSSSC is located in the SYSPRC.DRIVE.031 library.

The new-style subsystem is automatically installed with IMON. The procedure makes an entry into the subsystem catalog (name, e.g. SYS.SSD.CAT.X). The subsystem can be activated (i.e. loaded and unloaded) after the BS2000 system is restarted.

The catalog entry for the old-style DRIVE subsystem must be made manually.

For modifying the catalog with the DRIVE old-style interpreter entry, a sample procedure is supplied that must be adapted by the user. The procedure is called DRIPRC.SYSSSD.MODIFY and is located in the SYSPRC.DRIVE.031 library.

Every time the subsystem catalog is regenerated, the entry for the old-style subsystem DRIVE must be re-entered in the catalog manually.

## 2.4 Product use

Before DRIVE V3.1A is used, the customer has to generate start LLMs for the different operating modes.

This is done for all variants with the installation procedure DRIPRC.INSTALL.DRIVE from the SYSPRC.DRIVE.031 library.

The procedure DRIPRC.INSTALL.DRIVE.DLL in the SYSPRC.DRIVE.031 library must be used for generating start phases for pure old-style operation.

The installation procedure supplied with the compiler (see Compiler for description) is to be used for installing with the DRIVE compiler.

For binding the DRIVE start elements, the BINDER is used. For loading and starting, BLS is used.

With this linking method, external references can be kept open. The external references are only resolved during the start.

Starting DRIVE:

DRIVE is started with the following call:

```
/START-PROG FROM-FILE=*MODULE -  
/ (LIBRARY=<user-id>.<library with startllm>,-  
/ ELEM=<startllm>,PROG-MODE=ANY, -  
/ RUN-MODE=ADVANCED -  
/ (ALTERNATE-LIBRARIES=YES, -  
/ UNRESOLVED-EXTRNS=DELAY, -  
/ LOAD-INFORMATION=REFERENCES))
```

where:

<startelement> is the DRIVE start LLM,

missing ALTERNATE-LIBRARIES=YES,  
UNRESOLVED-EXTRNS=DELAY and LOAD-INFORMATION=REFERENCES  
lead to crashes because open entries are not resolved.

DRIPRC.START is a sample procedure for starting DRIVE with start LLMs and is supplied in the SYSPRC.DRIVE.031 library.

The following libraries must be assigned with LINK=BLSLIBxx:

- LMS, FHS macro and TIAM macro library with R module DCCOBRTS  
(if the BLSLIBxx assignments are omitted, the load process aborts with the DRIVE message "no DRI0055 BLSLIB assignment for LMS/FHS/DCCOBRTS")
- CRTE library  
(if the BLSLIBxx assignment is missing here, the load process aborts with a dump.

It must be ensured that no older software versions with libraries assigned with BLSLIBxx are loaded as shared. If, for example, LMS V2.0 is loaded as shared, starting a TIAM phase leads to the message "DRI0022 'LMS' message: 0(0:0)". You get the same reaction if there is an old LMS library under \$TSOS, even if this version is not loaded as shared.

You should avoid storing more than one start LLM in the same library since at startup BLS tries to resolve open external references from this library. The start LLM should also not be located in the DRIVE module library SYSLNK.DRIVE.031.

As of SESAM/SQL 2.2, SESAM start parameters may no longer be included in the start procedure for the UTM application. These should be specified in the SESAM configuration file; otherwise, the application start is aborted with a dump.

Conflicts when installing, loading and starting DRIVE (BS2000) in different modes (TIAM and UTM operation):

-----  
If a C module has the same name as an entry within it and this entry is called by DRIVE via CALL MODULE, the internal DRIVE search strategy causes DRIVE to restart, and when it tries to load the DRIVE main module, messages are output that these are duplicated and the load is aborted.

If FHS is loaded as shared, only the connection is satisfied via the BLSLIBxx link assignment and all other modules, which are linked via BIND, are satisfied via the part of FHS that is loaded as shared. If the connection part of FHS and the part loaded as shared are of different versions, problems will result (e.g., open entries).

If a mixed UTM application is started that contains object operations for both old and new-style and the runtime system for the old-style compiler (SYSLNK.DRIVE-COMP-LZS.031.OLD with the link name DRTOML) is not assigned, an IW5C occurs with the message "No memory available for the runtime stack".

### 2.4.1 Installing the message file

This takes place automatically via IMON.

### 2.4.2 Installing the UTM components

The user is supplied with control statement files for the KDCDEF program (in the SYSPRC.DRIVE.031 library) for generating the UTM components. The control statement files for the program KDCDEF have been adapted to the BLS functionality of UTM. Three KDCDEF files with the extension .DLL are supplied to support the old DLL interface. Refer to the README file for details on this.

These files contain only DRIVE-specific information and must first be modified/updated by the user as follows:

- <DRIVE-BIBLIOTHEK> and <SESAM-BIBLIOTHEK> must be adapted for the specific user.
  
- the VTV-specific parameters specified in angled brackets must be modified if distributed transaction processing is used.

User-specific values (e.g. USER) and the KDCDEF parameters ROOT, FORMSYS, OPTION GEN=ALL, MAX APPLINAME=, MAX APPLIMODE=, MAX KDCFILE must be specified separately.

The function key assignments must be checked.

The values specified for MAX correspond to the minimum requirements for DRIVE.

If necessary, the UTM generation procedure has to be modified.

Once the control statement files have been assigned by means of OPTION DATA, the program KDCDEF generates the source of the connection program (KDCROOT) and the KDCFILE.

The corresponding load modules are produced by running the installation procedure.

If DRIVE is to be integrated into existing UTM applications, the DRIVE-specific statements for generating the respective load modules must be integrated into the user-specific bind procedure from the general installation procedure (DRIPRC.INSTALL.RAHMEN.SESAM for the SESAM version or DRIPRC.INSTALL.RAHMEN.MIX for the mixed-operation version).

## 2.5 Obsolete functions and those to be discontinued

- The VERSIONMIX option of the COMPILE statement in new-style operation is no longer supported.

## 2.6 Incompatibilities

- LINK names  
LINK names are unchanged, file names have been changed from .022 to .031.
- The trace information generated via the MONINFO option of the COMPILE statement (new and old-style operation) has been adapted to the BLS functionality.
- The DRIVE installation procedure parameters in the library SYSPRC.DRIVE.031 have been changed (see the README file).
- Version 3.1A is source-compatible to the previous version 2.2A, i.e. intermediate code elements must be regenerated.

T1 - Due to internal interface adjustments in CRTE a link  
T1 assignment BLSLIB(xx-1) to the library  
T1 \$TSOS.SYSLNK.CRTE.<version>.TIMESHIFT in addition to the  
T1 BLSLIBxx to the CRTE library has to be made.  
T1 For required CRTE version depending on BS2000/OSD version see  
T1 chapter 2.2 Software configurations  
T1 If the LINK assignment is missing, the start procedure fails  
T1 with the following message:  
T1 "CCM0014 TIME\_T OVERFLOW. PROCESSING ABORTED"

## 2.7 Restrictions

- UTM application: It is advisable to run UTM applications with just one asynchronous task. Otherwise, file conflicts may arise with user-specific outputs (LIST statement) or DRIVE-specific processing (central list file).
- The use of temporary views is no longer supported as of SESAM/SQL V3.  
For new programs, it is recommended to no longer use temporary views but to employ only the permanent views that are customary in SQL.
- Contrary to the description, the result of a CHAR function is of type VARCHAR (see list of DRIVE statements, Section 5, DRIVE metavariables, charprim).
- The system variables &PHYS\_REC\_LENGTH and &DRIVE\_REC\_LENGTH described on page 183 of the DRIVE statement reference (READ FILE) are not available in this version.
- FILE access: If processing errors are to be intercepted during file processing, WHENEVER &ERROR IN ('FILE ERROR') must be used for this purpose. Contrary to the description in the manual DRIVE/WINDOWS V2.1 (BS2000), Programming Language "Language Description", Section 14.7 Error handling, the error message key of the data management system is not output in the DRIVE system variable &SUB\_CODE.

ADILOS link: There will be problems with DRIVE-ADILOS if

the start procedure for ADILOS and the control statement file are located in one library and are called from within this library. It is therefore recommended to maintain both as BS2000 files and start them accordingly.

## 2.8 Procedure in the event of errors

The following documents are required for diagnostic purposes in the event of errors.

- In case of suspected conversion errors or of performance problems, the trace variants described in the manual should be used. Special trace specifications may be necessary in individual cases. If necessary, these will be supplied by the Support Center.
- When internal errors are detected, DRIVE produces raise messages; in the old-style mode, there will be consistency checks and a dump. Certain raises and consistency checks indicate user errors. These are described in the manual, accompanied by explanations and suggested response measures. Dumps that were not caused by user errors are needed for diagnostic purposes and should be forwarded to the relevant Support Center.
- With DRIVE dumps produced under the UTM transaction monitor, both the UTM short dump and the user dump are required. The USER dump is required in SODUMP format.
- User dumps are required as primary dump files (PAM format) so that they can be processed with diagnostic tools.
- The task log and start procedure are required for errors occurring when starting DRIVE. If the start LLM is created with its own link procedure, this installation procedure and the link list are also required.

### 3 Software extensions

- SQL2: The language extension/standardization of SESAM/SQL Server V3.0 and 3.1 is available via DRIVE language resources (see the README file for details).
- DRIVE old-style is BLS-compatible; the old DLL technology is still supported.
- DRIVE functions  
OPTION INDEXCHECK=OFF/ON  
Meaning: during object code generation, no code is generated for checking the validity of index variables.