

Software Product Description

**PRODUCT NAME: TFM (Task Flow Management) for Windows NT clients and Windows NT server, Version 4.0
SPD 56.34.00**

DESCRIPTION

Task Flow Management (TFM) is Digital Equipment Corporation's sophisticated and versatile 4th generation environment for application software development. TFM provides a robust and complete development environment for creating applications in a client-server architecture.

TFM runs on standard PCs in a client-server architecture taking advantage of the Windows[TM] facilities on the client and server side

TFM Applications

TFM is especially suited to the creation of dialog-intensive applications in client-server configurations. TFM emphasizes building business procedures into the application, for example, building in automatic store or printing of a document. TFM's emphasis on building business procedures makes it easy for the end user to run the application. TFM is used in bank and insurance company applications, for example, Routine Transaction Management (RTM) and Work Flow Management (WFM). RTM is a teller application and WFM is a work flow application which manages documents in an electronic case folder that is sent around an organization according to a predefined procedure.

TFM enables rapid improvements of existing functions and easy introduction of new functions. TFM integrates data processing, office automation, and other applications into one system with a consistent user interface. Within the system, data can be exchanged between different software packages under the overall control of TFM. TFM applications exploits the Windows GUI. Different types of Windows functions supported by TFM are listed below:

- Menus
- Push-buttons
- Drop-down lists
- Pull-down menus
- Bitmaps and animation's

- Business graphics such as bar-charts, pie-charts, etc.
- Dynamic Data Exchange (DDE) communication support both as a DDE-server and a DDE-client
- OLE Automation. You can make an OLE Automation controller with TFM.
- Dialog Box containing:
 - Push-buttons (also owner drawn)
 - Radio buttons
 - Check boxes
 - List boxes
 - TFM List boxes
 - Entry fields
 - Combination boxes
 - Bitmaps
 - Icons
 - Static text
 - Static frame
 - Static rectangle
 - Groups with these different controls

Almost all GUI applications are mouse controlled. However, in some situations, for example, due to limited workspace, it is necessary to build applications not controlled by the mouse. The TFM Application Builder makes it possible to build totally keyboard driven GUI applications.

TFM Runtime Environment

TFM runtime is the central and mandatory part of all TFM systems. TFM runtime supports and manages the design and use of an application system. The nature of TFM is such that many parts of application design are predefined

as parts of TFM runtime. TFM provides application users with a GUI that conforms to the standards of Windows.

TFM Application Builder

Developing TFM application systems means creating a set of "building blocks," TFM models or TFM objects. The dialog models are the highest level of objects in a TFM application system. All other objects are referenced through the dialog model.

Other TFM objects are: dialog boxes, data sections, menu sets, subroutine sets, data buffers etc.

TFM objects are all small, independently stored building blocks, so an object can be used in several places in the application to perform the same function. Reusability of TFM objects is essential in TFM. These objects could also be effectively used as templates when new TFM applications are developed. It is only the updated objects that must be distributed when an application is updated. This results in significant cost savings when the application is distributed via the Wide Area Network (WAN).

TFM can efficiently be used in the whole software life cycle: requirements definition, prototyping, design, implementation, test and maintenance. TFM's main roles during the life cycle are prototyping, implementation and maintenance.

The TFM Application Builder includes:

- TFM Creators
- TFM Repository including version control
- TFM Development and Test Runtime
- On-line Reference Manual

TFM Creators

The TFM creators are high-level interactive specifications tools for creation and maintenance of the TFM objects, e.g., dialog models, data entry forms (Dialog Boxes or Data Sections), menus and GLAD subroutines.

TFM creators are:

- The Dialog Model Creator, DMC
- The Dialog Box Creator, DBC
- The Data Section Creator, DSC
- The Menu Set Creator, MSC
- The Subroutine Creator, SRC
- The Customizing Data Creator, CDC

DMC: The application specification is a unique feature in TFM. The dialog model is represented as an easy-to-read graph. The dialog model shows the sequence of steps and the relationships between them. TFM GLAD can be added to each step, e.g., pre-step processing or post-step processing. When the dialog is in progress TFM uses the dialog model to determine the decision paths to follow, the TFM objects to use, the processing to be carried out, and so on.

DBC: Building data entry forms as Windows Dialog Boxes is done using the Dialog Box Creator. The Dialog Boxes are used in dialogs to collect, validate, manipulate and present data. The following types of controls are supported by TFM in a Dialog Box: push-buttons, radio buttons, check boxes, edit fields, static texts, group boxes, list boxes, TFM List boxes combination boxes, icons and bitmaps. The layout of a Dialog Box is created with any external Dialog Box editor. The Dialog Box Creator is then used to define all the properties of the Dialog Box and the controls in it. It is, for example, possible to define that a certain dialog model should be executed when a push-button is pressed or that a TFM GLAD routine should be executed in order to validate input in an edit field.

DSC: Building data entry forms can also be done in TFM via data sections. These are used in dialogs to collect, validate, manipulate and present data. During data section creation the layout is designed by defining the static and dynamic fields of the data section. Defining a data section also involves:

- Section and field attribute settings that e.g., determine both the general characteristics and characteristics on individual fields
- Associating TFM GLAD subroutines to fields to perform validations, computations, data manipulations, etc. (both pre- and post-processing are available)

MSC: The menus are created using the Menu Set Creator. A menu can be displayed in four different ways: as a pull-down from the main menu bar, as a drop-down list coupled to the current field, as a drop-down menu coupled to the current field, and as push-buttons. A set of menus can be stored as a separate object and these objects could efficiently be reused in the same TFM application and in other TFM applications.

SRC: The subroutine creator is used for the creation and maintenance of TFM GLAD subroutines. TFM GLAD subroutines may be associated with steps in a dialog model, with controls in a dialog box, with fields in a data section, or with menu items like push-buttons. Such TFM GLAD routines may be used to perform computations, data manipulations, and to call one or more server programs, in parallel with the execution of the dialog model.

CDC: With this creator, TFM runtime components can easily be adjusted to local conditions and the TFM

system tuned to optimal performance. The main functions are: adapting keyboard conversion tables, building inhibit function key lists, translating messages from TFM runtime, tuning TFM runtime and definitions of printers and forms.

TFM GLAD

TFM GLAD, Graphical Language for Algorithmic Definitions, is TFM's internal language used to perform assignments, computations, data manipulations, to call one or more server programs, etc. TFM GLAD is represented as an easy-to-read graph similar to the dialog model. The flow control statements are represented in this graphical manner, i.e., it is not necessary to write loops or if-statements, since the graph controls the flow. The leaves in the TFM GLAD graph are portions of TFM GLAD coding statements that don't change the program flow. TFM GLAD editing takes full advantage of the Windows GUI using drag and drop, cut and paste, etc.

TFM Repository

TFM Repository ensures a productive development environment in which reliable, high-quality applications are rapidly created. Furthermore, it ensures fast and reliable modification of the application while still retaining consistency. It gives application developers better control of the information kept in the TFM libraries and it eliminates redundant re-entry of data.

The TFM Repository have good support for work group development via the concept of Update Cases.

The Repository includes the following functionality:

- Reference information about all TFM objects and relations between all TFM objects are stored in the Repository. Thus it is possible to see in the repository which dialog models refer to a certain dialog box or which GLAD subroutine is called from a certain dialog model. Examples of other objects that are managed in the Repository are dialog box controls, dialog box control templates, variables, buffers, menus, UPSs, electronic forms, bitmaps, icons and other external files etc.
- Version control. TFM objects belonging to one application can be frozen in a version control system. Many versions of a TFM object can thus be effectively controlled. The version control system stores the first frozen version and the changes that create the different versions. A repository object called "Update Case" groups together logically connected changes, e.g., all changes belonging to the same problem report. It is also possible for each developer to use a "private copy" of TFM objects while the others in the development team use unchanged versions. Later on, when the TFM object is well tested, the changed TFM

object is made common and is thereafter accessible to all developers of the same application.

- Time stamp. Creation date/time and last update is stored for each object in the Repository. This can be used when searching for objects for example.
- Protection against simultaneous updates. Developers will be warned when reading a TFM object into a creator if someone else already has this object attached to an Update Case. It is only the owner of the Update Case that can make updates of the object.
- Creation of a Repository from already existing TFM applications.

TFM Development and Test Runtime

TFM Development and Test Runtime is the enhanced version of TFM Runtime that developers normally use. It allows TFM application systems to be X-rayed with built-in debugging tools. The debugging tools give the developer a simultaneous screen view of the application from the point of view of both the end user and the developer. Dialog models, processing rules, and data buffers can be viewed on the screen in windows in parallel with the windows that make up the end-user dialog.

Furthermore, TFM Development and Test contains powerful logging and recording facilities that are useful during testing.

On-line Reference Manual

Included in the TFM Application Builder is the on-line TFM Reference Manual. The on-line Help uses a Windows standard Help facility.

TFM Services

TFM's powerful User Program Server (UPS) concept, which is built around a standard Application Program Interface (API), offers versatile and dynamic integration capabilities. All kinds of services can be added easily to the TFM system in the form of a set of user program servers. This is done through the UPS standard call mechanism which allows data to pass between TFM and the co-operating programs. Possible servers are database engines based on various Relational Database Management Systems (RDBMSs) and data communication applications.

The server applications can be developed in a 3GL. The software servers can reside in hardware servers from different vendors connected to the Local Area Network (LAN). The location of the software server is transparent to the TFM application.

Any third-party software package with an open API can cooperate with a TFM application. A UPS acts as the interface between TFM and the package. The main role of the UPS is to convert TFM calls into commands understood by the package and to convert return messages to a form understood by TFM.

A set of UPSs has been developed by Digital for use in the development of TFM applications. These UPSs interface a number of different databases, printers, etc. For more information on these UPSs, see the appropriate Software Product Description:

- Application Services Library (ASL) Device (SPD 43.00)
- Application Services Library (ASL) Database (SPD 43.01)

TFM Electronic Forms

TFM Electronic Forms enhances the printing capabilities in TFM. With TFM Electronic Forms it is possible to produce professional-looking printed forms and documents with graphical symbols. TFM Electronic Forms is an integral part of the most advanced TFM runtime package - TFM Doc.

The ability to print forms with frames, boxes, and logos merged with customer and transaction data substantially reduces the need to have preprinted forms.

TFM Charts

TFM charts provides the ability to display charts such as line, bar, 3D-bar, pie, and exploded pie charts in TFM applications. TFM charts are easy to use and well integrated with TFM. TFM charts are an integral part of the most advanced runtime package-TFM Doc.

TFM Documentation

TFM Developer's Guide is intended for TFM application designers and developers. It describes the user interface to TFM, and gives advice and examples to assist in TFM application development.

TFM Reference Manual is intended for TFM application developers. It describes TFM Application Builder, consisting of the TFM creators and utilities which are used to build and maintain TFM applications.

TFM Installation Guide describes how to install TFM.

HARDWARE REQUIREMENTS

PC Client Environment for Runtime and development:

- Personal computer with 486DX 66 MHz recommended
- Primary memory: 32 MB memory recommended
- Secondary storage: ~500 MB memory recommended

Server Environment:

- Personal computer with 486DX 66 MHz recommended

- Primary memory: 32MB recommended for 4-5 Workstations
- Secondary memory: ~1GB disk for 4-5 workstations

Network Requirements

For PC Client:

- LAN controllers supporting Ethernet:
- DEC Etherworks3 Turbo TP/BNC DE203-AA

For Servers:

LAN controllers supporting Ethernet :

- DEC Etherworks Turbo DE422-AA (EISA)

SOFTWARE REQUIREMENTS

PC Client Software

- Operating system: MS-Windows NT[TM] 3.5 1
- Dialog box editor: For development environment only :
- Use of the Dialog Box Creator requires a third-party Dialog Box editor that produces a Microsoft® Windows resource (*.res-file) that could be included in the Dialog Box Creator, for example, the Dialog Box editor in Microsoft Windows Software Development Kit or Microsoft C/C++ Compiler 7.0.

Server Environment Software:

- Operating system : MS-Windows NT[TM] 3.51
- Database server : MS SQL Server 4.2
- Revision handler : MKS RCS 7.1b for Windows NT 3.51

Network Requirements

PC Client software

- MS TCP/IP-32 for Windows NT

For Servers:

- TCP/IP for Windows NT (included in the operating system)

GROWTH CONSIDERATIONS

The minimum hardware/software requirements for any future version of this product may be different from the requirements for the current version

DISTRIBUTION MEDIA

TFM is distributed on 3.5-inch DSHD diskettes.

ORDERING INFORMATION

TFM Application Builder:

TFM Application Builder consists of the complete TFM development environment and TFM runtime.

TFM Documentation and Media Kit:

Part Number	Description
QA-3ADAA-GZ	TFM WNT DOC KIT TFM Documentation Kit
QA-588AY-HC	TFM WNT/WNT RX24 MEDIA KIT TFM Media Kit

INDIVIDUAL LICENSES:

Part Number	Description
QL-588AY-AA	TFM DEV CL WNT TRAD LIC TFM Appl. Builder for WindowsNT C*
QL-3ADAY-AA	TFM DEV SVR WNT TRAD LIC TFM Appl. Builder for WindowsNT
QL-58AAY-AA	TFM DOC CL WNT TRAD LIC TFM Runtime for WindowsNT Client
QL-3AEAY-AA	TFM RT SVR WNT TRAD LIC TFM Runtime for WindowsNT Server

License packages (QL) are defined for larged volumes. These packages are defined for project sizes up to 10,000 workstations.

The following TFM documentation are available separately:

Part number	Description
A-PTU5B-TE	TFM Developer's Guide
AA-PTU6D-TE	TFM Reference Manual
AA-R172A-TE	TFM for WindowsNT/WindowsNT Installation Guide
AA-PXLQB-TE	TFM The Essentials

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This software is furnished under the licensing provisions of Digital Equipment Corporation's Standard Terms and

Conditions. For more information about Digital's licensing terms and policies, contact your local Digital office.

INSTALLATION

Digital recommends that a customer's first purchase of this software product include Digital Installation Services. These services provide for installation of the software product by an experienced Digital Software Specialist.

For subsequent purchases of this product, only experienced customers should attempt installation. Digital recommends that all other customers purchase Digital's Installation Services.

SOFTWARE PRODUCT SERVICES

A variety of service options are available from Digital. These include project services which are available to design and implement custom banking solutions. Service offerings for this product which include telephone or electronic assistance, will be available during the normal business hours of the local DIGITAL office (typically, Monday through Friday, 8AM- 5PM dependent on country resources), excluding locally observed DIGITAL holidays.

For additional information contact your local Digital office.

SOFTWARE WARRANTY

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