Software Product Description

PRODUCT NAME: Compaq TeMIP Access Library Toolkit V4.1 for Windows NT® SPD 70.67.02

DESCRIPTION

TeMIP is a family of software products for the management of telecommunications and corporate networks, including fixed wire and mobile/cellular voice and data, multi-vendor, multi-technology networks. TeMIP V4.0 provides comprehensive off-the-shelf fault management functions such as Alarm Handling and Event Logging for telecommunications network management.

TeMIP supports the International Standards Organization (ISO) management standards ISO 10164-x and 10165-x, and the NMF Ensembles standards. TeMIP and its features are applicable in the context of the International Telephone Union-Telecommunication Standards (ITU-T) X.73x and Telecommunication Management Network (TMN) M.3010, M3100 Recommendations. It gives network operators a global view of their networks, and enables them to activate management functions and operations from single or multiple workstations.

TeMIP is built on top of the TeMIP Framework and fully benefits from the object oriented and truly distributed software architecture.

The Client-Server TeMIP Access Library Toolkit V4.1 (TAL Toolkit) for Windows NT is part of the TeMIP program and is aimed at developing and integrating intelligent TeMIP presentation applications running on remote Windows NT PC systems.

The TeMIP Access Library Toolkit provides ways to make easier the task of accessing, manipulating and acquiring meaningful and accurate information from a TeMIP Director and then displaying it in a graphical or command line application.

Essentially, the TAL is a Client-Server implementation of classes that provides a gateway to the TeMIP world. To do this, the TAL provides an object-oriented class library of low-level TeMIP components that have been especially written to interface TeMIP across a network.

These object classes are easy to use by virtue of the high level of abstraction and simple data types.

Note: The Local TAL is a TeMIP Access Library implementation used for building TeMIP-based presentation applications that interface directly with TeMIP running locally on Compaq Tru64 UNIX. This implementation is provided within the Visual TeMIP developer's toolkit, which is part of the TeMIP Framework product.

TAL CLASSES

The TAL provides a number of powerful programming features including controlled access to TeMIP information by creating a level of abstraction on the respective TeMIP structures using a variety of Service classes:

- Global: for initialization, shutdown, and so on
- Call: performs directives and decodes the results
- Data Type Access: handles TeMIP values representing any data type
- Dictionary Access: accesses the TeMIP meta-data (TeMIP Dictionary information)
- Iterators and Exception: for error handling
- Tracing: for troubleshooting the application.

Global Services Classes

The **TApplication** class provided by Global Services is used to define the properties of your application. This includes:

- Initialization and shutdown of the application and verification of its validity
- Determining the application's name and the TeMIP user name for authentication in the TAL
- Trace provision
- Reply handling for the "call mechanism", using callback and call iteration techniques
- Name space information handling and conversion
- Event notification procedures for conditions such as: TeMIP Server stopped, reply must be dispatched, or connection with the TAL Server has been lost.

Call and Reply Services Classes

TeMIP directives are performed through the Call Services. The Call Services handle the decoding of the TeMIP responses that are available through the Reply Services. The Reply Services are used to decode the information TeMIP returns when a TeMIP Call has been performed. The Call and Reply Services provide an asynchronous or synchronous interaction with TeMIP.

The Call Services are used through **TCall, TSyncCall** and **TCallList** objects.

The Reply Services are used through a **TReply** object.

Call Services comprise classes and constructors for creating single or listed calls (directives) to TeMIP.

These allow:

- The possibility to initiate a call in one of two ways:
  - by passing the numerical codes of the verb and partition
  - by passing character strings
- Automatic internal copying and destruction of call objects, allowing objects to be stacked rather than placed in dynamic memory (asynchronous call only)
- Identification and cancellation of calls (asynchronous call only)
- Decoding, filtering, and packaging of the TeMIP call
- Logging of commands and low-level access control through the use of a lower level of TeMIP Security.

Note: The TAL Call Service is mono-partition (it can only make calls to a single partition at a time). For example, making a request containing values from several partitions (for example, an attribute list for a 'set' call) is not supported.

Data Type Access Classes

Only a subset of the TeMIP data types is available using the TAL Toolkit.

A **TNotSupported** data type class is used to represent the non-supported data type.

For each supported TAL data type, a class exists that enables the values of the corresponding data type to be manipulated. Each of these TAL classes can be constructed or implicitly converted to the corresponding basic data type.

For more complex data types (for example, constructed or constructor), no corresponding basic data types exist. Values are created and accessed using specific methods.

The following classes represent TeMIP data types:

- **TAbsTime**
- **TAttribute**
- **TAttributeID**
- **TAttributeList**
- **TBoolean**
- **TCounter16,32**
- **TEntityClass**
- **TEntitySpec**
- **TEnumeration**
- **TError**
- **TEventReport**
- **TFullName**
- **TLatin1String**
- **TRecord**
- **TSequenceOf**
- **TSetOf**
- **TSimpleName**
- **TUnsigned16,32, TInteger16,32, TReal, TFloat**
- **TUserDefined**
- **TTeMIPMessage**

- **TNotSupportedDatatype**

The following iterator classes are also available:

- **TRecordIterator**
- **TSequenceOfIterator**
- **TSetOfIterator**
- **TEventReportIterator**
- **TAttributeListIterator**
- **TAttributeIDListIterator**

Dictionary Access Classes

Information in the TeMIP Dictionary can be accessed using classes from the Dictionary Access Services, thus providing ways of building "dictionary driven" applications.

Iterators and Exception Classes

Interaction with the TAL is considerably simplified. The TAL does not use Condition Value Returned (CVR) to signal an error or particular condition to the application. The TAL throws exceptions when errors or unexpected conditions occur.

The TAL defines a base class for all the exceptions and a number of predefined exceptions.

Tracing Services Classes

Application troubleshooting can be refined by using trace classes from the Tracing Services. Information that can be stored in any basic data type can be used in a trace.

- **TTraceStream class**: allows the logging of traces on demand.

PROGRAMMING EXAMPLES

A number of example applications that use the TAL are included within the TAL toolkit. Each example includes a Visual C++ 6.0 project file that contains the correct compilation options. These are simple applications that show how to make calls, access the TeMIP Dictionary, or create a Command Line application. The following examples are provided:

- Call_1; shows a simple call
- Call_2; shows how to make a Summarize call on an Operation Context. A filter is used to limit the returned argument of the event
- CommandLine; shows how to create a simple command line application
- Dict_1; shows how the dictionary services can be used in the TAL environment. All the attributes of an Alarm Object are listed
- Miscellaneous_Samples; various samples
- OCShow; shows how to monitor one Operation Context at a time
- OCPanel; shows how to retrieve a list of Operation Contexts
- Dict_Dump; shows how to scan the contents of the TeMIP Dictionary.

Note: The TeMIP Alarm Handling on Windows NT software product has been developed using the TeMIP Access Library Toolkit for Windows NT. For more information on this application refer to SPD 70.64.xx.

EXECUTING A CLIENT-SERVER TAL APPLICATION

To execute a Client-Server TAL Application, you must ensure that at least one TAL Server for Compaq Tru64 UNIX is running on a TeMIP Director.

The TAL Client system must be configured to connect to an available TAL Server.

When running the TAL Application on a different system than the one used for development, the TeMIP Access Library for Windows NT software must also be installed on this system.

The *TAL_ORBIX_SERVER* environment variable in Windows NT defines the system where the Server is running (for example, mysystem.domain.com).

Once you start the Application, the Client-Server TAL security verifies that you are authorised to run the Application

DOCUMENTATION

The TeMIP Access Library Toolkit documentation suite provides information on developing presentation applications using the TAL Toolkit. It includes the following documents:

- Compaq TeMIP Access Library Reference Guide
- Compaq TeMIP Access Library Development Guide

HARDWARE REQUIREMENTS

Any Intel Pentium based PC is supported.

Disk Space Requirements:

Disk space required for installation:

49MB

Disk Space Required for Use (Permanent):

15.5MB

These figures refer to the disk space required on the system disk. The sizes are approximate; actual sizes may vary depending on the user's system environment, configuration, and software options.

Memory Requirements:

The minimum memory supported is 64MB.

The recommended configuration for developing Windows NT based TeMIP Presentation Applications is:

Compaq Presario with 96MB memory and 4GB of disk space.

SOFTWARE REQUIREMENTS

For development systems:

- Windows NT V4.0
- Microsoft Visual C++ 6.0.

Note: Rogue Wave Tools.h++ (Version 7.0.1) Foundation Class Library is installed as part of the TeMIP V4.0 or TeMIP Client for Windows NT products, since this is a prerequisite for compiling Presentation Applications written with the TAL. Tools.h++ is a C++ class foundation library that provides C++ data structures. Time, date, string, linked lists and many fundamental structures that are needed for working with the TAL are included in this library.

GROWTH CONSIDERATIONS

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

YEAR 2000 READY

This product is Year 2000 Ready.

"Year 2000 Ready" products are defined by Compaq as products capable of accurately processing, providing, and/or receiving date data from, into and between the twentieth and the twenty-first centuries, and the years 1999 and 2000, including leap year calculations, when used in accordance with the associated Compaq product documentation and provided that all hardware, firmware and software used in combination with such Compaq products properly exchange accurate date data with the Compaq products.

For additional information visit Compaq's Year 2000 Product Readiness web site located at http://www.compaq.com/year2000 .

To ensure that this product is Year 2000 Ready, code assessment and system tests to verify the transition between December 31st 1999 and January 1st 2000 were utilized.

To ensure that this product interoperates properly with other hardware and software, the system tests involving Compaq's TeMIP V4.0 are applicable, as this product was verified as being Year 2000 Ready.

ORDERING INFORMATION

TeMIP Access Library Toolkit V4.1 for Windows NT:

Software License: QM-69JAA-AA

Software Product Services: QT-69JA*-**

TeMIP Access Library Client V4.1 for Windows NT:

Software License: QM-69KAA-AA

Software Product Services: QT-69KA*-**

Note: * denotes variable fields. For additional information on available services, or hardware platform tiers, refer to the appropriate price book.

For the above licenses:

Software Media: QA-6HPAA-H8

Software Documentation: QA-69JAA-GZ

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