



VERIX V DEVELOPER TOOLKIT

POWERFUL OPEN TOOLS SPEED DEVELOPMENT OF APPLICATIONS FOR VERIX V-BASED TERMINALS

THE VERIFONE VERIX V DEVELOPER TOOLKIT — consisting of an ARM compiler and a comprehensive developers package including Enhanced Comm Software — offers a full collection of tools and utilities that streamline the design, development and testing of applications for VeriFone's Verix V-based terminals.

VERIX V DEVELOPMENT SUITE

The Verix V Development Suite provides programmers the convenience of working in the familiar Visual C/C++ environment, while leveraging a wide range of useful tools, utilities and libraries. VeriFone has included software installation utilities, a set of libraries for efficient application development, and a number of powerful tools that aid in the creation and appearance of display information and printer output.

ENHANCED COMMUNICATIONS PACKAGE

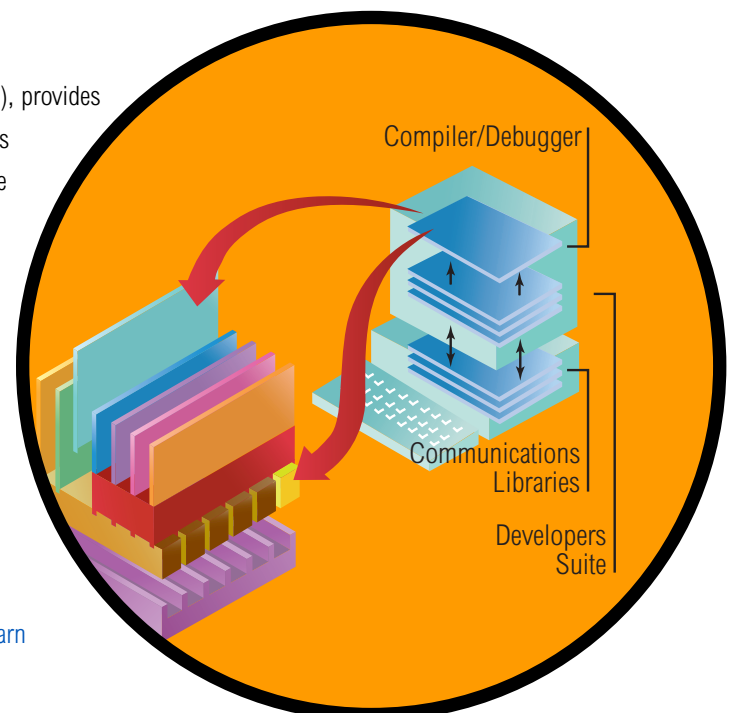
The Enhanced Communications package provides you with the latest advanced applications and libraries (Comm Server, TCP/IP, UCL, and IPDL) designed specifically to increase the performance of your Verix V application communications and simplify your development experience.

ARM COMPILER/DEBUGGER

The third-party ARM Compiler/Debugger, RVDS (RealView Developer Suite), provides a coordinated development environment for embedded systems applications running on the ARM® family of RISC processors. The RVDS consists of the RealView Debugger, RealView Compilation Tools, and RealView ARMulator. The tools (together with supporting documentation and examples) enable you to write, build, and debug your applications, either on target hardware or software simulators.

BENEFITS AT A GLANCE

- Speeds development of high-quality applications for Verix V-supported terminals
- Programmers concentrate on high-level customization by streamlining routine tasks
- Reduces time-to-market with the help of familiar, easy-to-learn tools and utilities
- Simplifies testing and debugging



VERIX V DEVELOPMENT SUITE

To further speed development and ensure that end users receive thoroughly tested applications, the Verix V Development Suite lets you preview, test and debug payment applications on a PC — before downloading the programs to the terminals.

The Development Suite includes the *Verix V Application Construction Toolkit (VACT)* which provides predefined library elements including function calls for efficient event dispatching, screen and keypad management, and communications support. Because VeriFone's SoftPay software has been architected with elements from the VACT library, it provides an application framework for creating customized POS applications.

The *VeriShield File Signing Tool* is your key to unlocking the full benefits of file authentication protection in a multi-application environment. As the sponsoring organization that controls access to a terminal's applications and data, you can use this tool to guard against hackers and competing organizations alike.

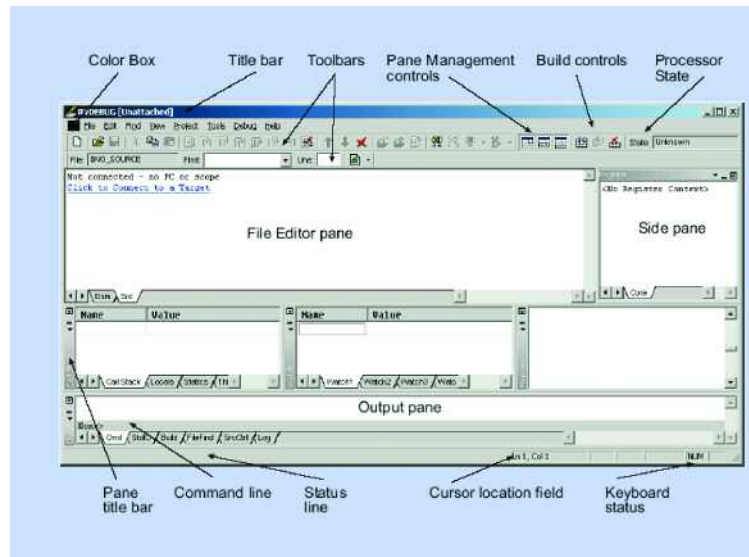
Verix Multi-app Conductor (VMAC) is an application manager designed to manage application selection, device usage, inter-task synchronization and communications, and many other multi-application environment related requirements within the Verix V platform family. VMAC allows two or more applications, that have been developed independently, to run together seamlessly on the same Verix platform. It consists of a set of co-operating tasks and libraries, which assists developers as they design and develop applications.

The *Verix V Terminal Management Agent (TMA)* application is essential for the message management and remote collection and diagnostics components of VeriCentre. TMA's functionality is achieved by defining a set of Monitored Items that need to be supported. These Monitored Items are set or retrieved by the VeriCentre server. The Verix V TMA runs as a Verix executable on the terminal.

ARM COMPILER/DEBUGGER

RealView Debugger, together with a supported debug target, enables you to debug your application programs and have complete control over the flow of the program execution so that you can quickly isolate and correct errors.

You can also build your applications from RealView Debugger because it provides a build interface to the RealView Compilation Tools. From this interface you can specify the build options required by your applications. You can also edit your application source code using the built-in text editor.



A highly optimized compiler/debugger that results in proven reliability and flexibility for embedded applications, and interoperability with other development tools, enabling you to immediately gain maximum performance from your investment.

ENHANCED COMMUNICATION APPLICATIONS AND LIBRARIES

Communication Server

The *Communication Server (Comm Server) Framework*, which takes advantage of the Verix Multi-Application architecture, provides a Client/Server based solution for IP communication and is responsible for all communications from the session layer down. This allows the client application to switch communication media without requiring code changes or re-compilation. It also provides an ability to configure the network device and complete a network configuration test.

Advantages of creating and using Comm Server are:

- Multiple concurrent communication sessions: The server task can maintain multiple concurrent communication sessions (“sockets” in the case of TCP/IP) with multiple client applications.
- Application independence: The Comm Server can be developed and tested independent of a client application.
- Interoperability: The message interface, defined by this framework, is designed to be independent of the specific server communications medium.

TCP/IP

Verix V TCP/IP Library is an implementation of TCP/IP protocol stack for Verix V terminals. The library defines an interface layer consisting of “Socket API” to the applications. The library supports point-to-point communication over multiple media supported by UCL or application defined media in addition to DNS, DHCP and Ping.

TCP/IP library provides the following advantages:

- Enables Verix V terminals to communicate with hosts on the Internet.
- Provides the flexibility for applications to communicate with IP hosts on the Internet through the RS-232 port (COM1) or dial-up/Ethernet port (COM3) of the terminal.
- Can be used for payment applications, where you can carry out electronic transactions over the Internet.
- Can be used for non-payment applications such as gift cards and loyalty applications.

IPDL

Verix V IP Download Library (IPDL) is an implementation of Zontalk protocol stack for Verix V terminals over TCP/IP. The library defines an interface layer to the applications.

UCL

Universal Communications Library (UCL) provides common communication API with a normalized interface to device drivers for various communication media. This interface provides the application with seamless transparency across landline, RS-232C, GPRS, CDMA and WiFi hardware platforms.

UCL includes the following features:

- Provides easy switch over between the different communication media with minimal change in the applications.
- UCL occupies less system memory thereby increasing system performance. Only the active component — that is the component in use by the application — occupies the system memory. The components not in use are not linked to the application and therefore do not occupy system memory.
- UCL facilitates plugging in application-specific communication devices without affecting the functionality of the devices supported by the library.

SAVE TIME AND MONEY

The Verix V Developer Toolkit helps you develop high-quality applications in less time and for less money. With the Development Suite, you can use existing library code as the foundation for new routines and functions. These pretested, C-based modules make programs more consistent, and compact with fewer errors — saving hours of development and testing time and producing smaller, more memory-efficient applications.

With the Development Suite, you can see the results of your work as you go. This helps keep the development process on track and delivers applications on time and on budget. All programs developed using the Verix V Developer Toolkit will work across the full range of terminals that support VeriFone's Verix V operating system. Using the base code provided in the Development Suite, applications can be ported to different Verix and Verix V-based terminals — with only minor modifications required to take advantage of system-specific features.

Best of all, the rich set of tools, libraries and other utilities contained in the Verix V Developer Toolkit are easy to learn and use.

FEATURES

- Supports development and testing of applications for all Verix V-based terminals.
- Offers a comprehensive and familiar framework that simplifies designs and reduces development time.
- Works with the Microsoft C/C++ IDE and Microsoft Developer Studio.
- Includes specialized libraries with pretested software modules for event management, dialog services, and other routines and functions.
- Helps programmers create applications incorporating a wide range of fonts, including programs that use character-based and picture-based languages.
- Provides visual, PC-based representations of content and resources to streamline editing.
- Allows extensive modeling and testing through the use of Platform Simulator and VeriPrint Printer Simulator.
- Facilitates development of applications using either Latin-based or character-based languages, and the opportunity to build logos and graphics with the Font Generation Tool.
- Assists in generating and checking test scripts for payment and payment-related applications.

SPECIFICATIONS

Hardware

IBM or IBM-compatible PC

166 MHz Pentium processor
(200 MHz or faster recommended)

16 Mbytes of free RAM
(32 Mbytes recommended)

CD-ROM drive

15-inch monitor with support for 1024 x 768 resolution
(17 inch monitor recommended)

Software

Microsoft Windows 95, 98, 2000 and XP, or NT 4.0

Microsoft Visual C++, version 6.0 or later

WinZip utility, version 7.0 or later