HP OpenVMS Application Modernization and Integration Infrastructure Package, Version 2.2

SOFTWARE PRODUCT DESCRIPTION 80.58.09

Description

The HP OpenVMS Application Modernization and Integration Infrastructure Package provides Internet, e-business, and integration software technology that enhances the OpenVMS Alpha and I64 operating systems and enables the development of e-business and enterprise integration solutions. The technologies are bundled with the OpenVMS for Integrity servers operating system, and included with the OpenVMS Alpha Software Products Library distribution. Several components are bound by an open source software license. For more information about the OpenVMS e-business technologies, visit the following web site:

`http://www.hp.com/go/openvms/ebusiness`

OpenVMS I64 Components

The following software and accompanying documentation is included in one or more of the OpenVMS I64 Operating Environments (OEs):

Component	Version	Comments
Distributed NetBeans for OpenVMS	1.1-1	Cross-development environment based on NetBeans
HP OpenVMS Enterprise Directory	5.6	Combines LDAP and X.500 technologies
HP OPC Transport	1.0	Application development and deployment tool for creating distributed applications consisting of network objects
HP Reliable Transaction Router (RTR)	5.1	Fault-tolerant, transactional messaging middleware
HP Secure Web Browser for OpenVMS	1.7-13	Based on Mozilla 1.7.13
HP Secure Web Server for OpenVMS	2.1-1	Based on Apache 2.0.52
Tomcat and mod_jk (CSWS_JAVA)	3.0	Based on Apache Tomcat 5.5.9
mod_php (CSWS_PHP)	1.3	Based on PHP 4.3.10
Perl/mod_perl (CSWS_PERL)	5.8.6, 2.1	Based on Perl 5.8.6, based on 2.0.1
J2SE™ Development Kit (JDK) for the OpenVMS I64 Operating System for the Java™ Platform	5.0-2	
Simple Object Access Protocol (SOAP) Toolkit for OpenVMS	2.0	Based on Apache Axis Version 1.1
Universal Description, Discovery, and Integration (UDDI) Client Toolkit for OpenVMS	1.0A	Based on UDDI4J Version 2.0.2
Web Services Integration Toolkit (WSIT)	2.0	Toolkit to expose OpenVMS applications as callable objects.
XML-C++ Technology for OpenVMS XML Parser in C++ XSLT Stylesheet Processor in C++	2.0-2	Based on Apache Xerces-C 2.2.0 and Apache Xalan-C 1.5
XML-C++ Technology for OpenVMS XML Parser in C++ XSLT Stylesheet Processor in C++	3.0	Based on Apache Xerces C Version 2.7.0 and Apache Xalan C Version 1.10
XML-J Technology for OpenVMS XML Parser in Java XSLT Stylesheet Processor in Java	2.0	Based on Apache Xerces-Java Version 2.3.0 and Apache Xalan-Java Version 2.4.1

OpenVMS Alpha Components

The following software and accompanying documentation is included in the OpenVMS Alpha Software Products Library distribution:

Component	Version	Comments
Distributed NetBeans for OpenVMS	1.1-1	Cross-development environment based on NetBeans
HP BridgeWorks (Alpha only)	3.0A	Application development and deployment tool for creating distributed applications from existing 3GL programs and modules
HP COM for OpenVMS (Alpha only)	1.4	Application development and deployment tool for creating distributed applications consisting of network objects
HP OpenVMS Enterprise Directory	5.6	Combines LDAP and X.500 technologies
HP Reliable Transaction Router (RTR) for OpenVMS	5.1	Fault-tolerant, transactional messaging middleware
HP Secure Web Browser for OpenVMS	1.7-13	Based on Mozilla 1.7.13
HP Secure Web Server for OpenVMS Tomcat and mod_jk (CSWS_JAVA) mod_php (CSWS_PHP) Perl/mod_perl (CSWS_PERL)	2.1-1 3.0 1.3 5.8.6, 2.1	Based on Apache 2.0.52 Based on Apache Tomcat 5.5.9 Based on PHP 4.3.10 Based on Perl 5.8.6, based on 2.0.1
J2SE™ Development Kit (JDK) for the OpenVMS Alpha Operating System for the Java™ Platform	5.0-3	Fast VM for OpenVMS Alpha bundled with JDK
Simple Object Access Protocol (SOAP) Toolkit for OpenVMS	2.0	Based on Apache Axis Version 1.1
Universal Description, Discovery, and Integration (UDDI) Client Toolkit for OpenVMS	1.0A	Based on UDDI4J Version 2.0.2
Web Services Integration Toolkit (WSIT)	2.0	Toolkit to expose OpenVMS applications as callable objects.
XML-C++ Technology for OpenVMS XML Parser in C++ XSLT Stylesheet Processor in C++	2.0-2	Based on Apache Xerces-C 2.2.0 and Apache Xalan-C 1.5
XML-C++ Technology for OpenVMS XML Parser in C++ XSLT Stylesheet Processor in C++	3.0	Based on Apache Xerces C Version 2.7.0 and Apache Xalan C Version 1.10
XML-J Technology for OpenVMS XML Parser in Java XSLT Stylesheet Processor in Java	2.0	Based on Apache Xerces-Java Version 2.3.0 and Apache Xalan-Java Version 2.4.1

Component Descriptions

Secure Web Server

Secure Web Server (SWS) provides a powerful, flexible web server based on the popular Apache Web Server from the Apache Software Foundation. SWS provides the following features:

- HTTP/1.1 compliance (RFC2616)
- All standard Apache extensions (modules)
- Support for PHP, Perl, Java Servlets, and Java Server Pages (JSP)
- Secure Sockets Layer (SSL) support (mod_ssl) using OpenSSL
- Digital certificates from VeriSign Inc.

To expand and extend the usefulness of SWS, the following optional software components are available for use with SWS:

- mod_PHP (CSWS_PHP) provides support for PHP, a server-side, cross-platform, and HTML embedded scripting language that facilitates creation of dynamic web pages. PHP-enabled web pages can be created and edited the same as regular HTML pages.
- mod_PERL (CSWS_PERL) and Perl provide support for Perl, an interpreted high-level programming language that is highly portable across systems. Perl has become the premier scripting language of the Web, and many CGI programs are written in Perl. mod_PERL allows SWS modules to be written entirely in Perl.
- mod_JK and Tomcat (CSWS_JAVA) provides Java run-time support for Java Servlet and JavaServer Pages (JSP) technologies that facilitate creation of dynamic web pages and Java-based application deployment.

Secure Web Browser

Secure Web Browser (SWB) provides a powerful, flexible, and modern web browser based on the Mozilla open-source project started in 1998 by Netscape Communications Corporation. The Mozilla Web Browser is designed for standards compliance, performance, and portability.

SWB is the officially supported web browser for OpenVMS and provides a full featured and customizable browser with integrated web browsing, security, HTML document creation and editing, and clients for mail, news, and instant messaging. SWB includes support for the following features:

- HyperText Markup Language (HTML 4.01)
- Cascading Style Sheets (CSS1/2)
- Document Object Model (DOM1/ 2)
- eXtensible Markup Language (XML)
- Resource Definition Framework (RDF)
- Secure Socket Layer (SSL)
- Java and JavaScript

J2SE™ Development Kit (JDK) for the OpenVMS Operating System for the Java™ Platform

The JDK for OpenVMS provides an environment in which to develop and deploy Java applications on OpenVMS. Java applications can be written once and run on any operating system that implements the Java run-time environment, which consists primarily of the Java Virtual Machine (JVM). The JDK is a set of building blocks containing basic development tools and a rich set of class libraries, including:

- Java Compiler
- Java Virtual Machine (JVM)
- Fast VM for OpenVMS Alpha; HotSpot for OpenVMS I64
- Java Class Libraries
- Java Applet Viewer
- Java Debugger and other tools
- A POSIX threads (pthreads) implementation that provides increased performance on multiprocessor systems
- Flexible options for representing UNIX directory and file specifications on OpenVMS systems

For OpenVMS Alpha systems, the JDK includes the Fast VM, which is Just-In-Time (JIT) compiler technology designed to provide optimal Java run-time performance. The Fast VM offers significant performance advantages over the Classic JIT provided with the JDK. For OpenVMS I64, the corresponding JIT compiler technology is the HotSpot JVM.

XML Technology

To give applications the ability to parse, generate, manipulate, validate, and transform Extensible Markup Language (XML) documents and data, the following components are provided using open source software from the Apache Software Foundation:

- An XML parser in Java and C++
- An XSLT stylesheet processor in Java and C++

Simple Object Access Protocol (SOAP) Toolkit

SOAP provides a simple, lightweight mechanism for exchanging structured and typed information between peers in a decentralized, distributed environment. SOAP is an XML-based protocol that consists of three parts: an envelope that defines a framework for describing the contents of a message and how to process it, a set of encoding rules for expressing application-defined datatypes, and a convention for representing remote procedure calls and responses. SOAP defines a simple mechanism for expressing application semantics that allows SOAP to be used in a wide variety of systems.

The SOAP Toolkit is Java based and provides development tools to create SOAP clients or to implement server-side SOAP accessible services that use HTTP as the transport protocol. As a client library, it provides the ability to invoke SOAP RPC services available elsewhere, in addition to features for sending and receiving SOAP messages. As a mechanism to write new RPC or message accessible services, it requires a Java servlet run-time environment such as that provided by Tomcat in conjunction with the Secure Web Server.

Universal Description, Discovery and Integration (UDDI) Client Toolkit

Universal Description, Discovery and Integration (UDDI) is the service discovery protocol for Web Services. UDDI is the building block which enables businesses to quickly, easily and dynamically discover each other, define how they interact over the Internet, and share information in a global registry architecture. UDDI is a comprehensive, open industry initiative.

The UDDI Client Toolkit is based on the UDDI4J open source implementation and provides a Java class library that provides an API to interact with a UDDI registry.

Web Services Integration Toolkit (WSIT)

The Web Service Integration Toolkit (WSIT) contains a collection of integration tools. These tools are easy to use, highly extensible, based on standards, and built on open source technology. The toolkit can be used to call OpenVMS applications written in 3GL languages, such as C, BASIC, COBOL, FORTRAN, and ACMS from newer technologies and languages such as Java, Microsoft .NET, Java-RMI, JMS, and Web Services.

The Web Service Integration Toolkit is focused on integrating at the application interface (API) level. WSIT generates a JavaBean wrapper for a supplied OpenVMS API. At runtime, you can specify if the application will be run in the process of the caller (in-process) or in separate processes (out-of-process) managed by the WSIT runtime

Distributed NetBeans

Distributed NetBeans for OpenVMS facilitates easy and transparent development of applications for deployment on OpenVMS system using the NetBeans IDE on your desktop system of choice, such as Windows or Linux. In addition, Distributed NetBeans provides the following plug-in modules: C/C++, FORTRAN, COBOL, and Pascal compiler support, and MMS, BASH, DCL, CMS, and EDT Keypad support.

Distributed NetBeans is comprised of two parts:

- Distributed NetBeans Client for OpenVMS, which is a plug-in for NetBeans running on your desktop. You install the NetBeans IDE (from NetBeans.org) and the Distributed NetBeans Client for OpenVMS on your desktop system.

- IDE Server for OpenVMS, which runs on OpenVMS, and provides remote services for the client plug-in. You install the IDE Server on your OpenVMS system. Communication between the client system and the remote server system is encrypted using SSL. Only the Java SE JDK is required on the OpenVMS server system; NetBeans or any additional plug-in modules are not required.

BridgeWorks (Available on OpenVMS Alpha only)

BridgeWorks is an automated component-creation tool that exposes existing 3GL-based applications and modules as components using the JavaBeans, Enterprise JavaBeans, or COM object models and thus facilitates the development and deployment of distributed applications.

BridgeWorks can "componentize" or "wrap" applications written in COBOL, Pascal, BASIC, C, FORTRAN, Ada, and any other 3GL language that supports the OpenVMS Calling Standard. Such applications must have routines that are externally callable. BridgeWorks can also wrap DCL procedures, ACMS applications, and aggregate datatypes (structures and arrays).

BridgeWorks consists of a GUI development tool on the Windows NT®/2000 desktop, a server manager component on OpenVMS, and extensive online help. All the necessary files and code are generated to build the selected application or module into a component in a three-tier, distributed architecture. Web and desktop clients can then communicate with these new distributed components using industry-standard technologies as if they were the application that enables the development and deployment of solutions for the widest range of client platforms and the Internet.

OLE for Process Control (OPC) for OpenVMS (Available on OpenVMS Integrity only)

OLE for Process Control (OPC) is an open standards specification based on the OLE, COM, and DCOM technologies developed by Microsoft, used in industrial automation and enterprise systems. OPC Transport is intended for use in OPC environments and is a subset of COM. Only unauthenticated COM is supported.

COM for OpenVMS (Available on OpenVMS Alpha only)

Component Object Model (COM) is a technology from Microsoft Corporation that allows developers to create distributed network objects. The former Digital Equipment Corporation and Microsoft jointly developed the COM specification. First released by Microsoft on Windows NT as Network Object Linking and Embedding (NetOLE), and then renamed Distributed COM (DCOM), the COM specification now includes network objects.

COM is used to create distributed applications made up of reusable objects. COM locates objects locally or in a network and uses the Remote Procedure Call (RPC) wire protocol to communicate between these objects across the network.

COM on OpenVMS delivers connectivity and interoperability between OpenVMS Alpha and Windows NT systems. With COM for OpenVMS, programmers write distributed applications that run across systems in a heterogeneous environment. COM for OpenVMS is based on the Microsoft COM shipped on Windows NT 4.0 SP5 and implements many of the features of Microsoft COM including activation, automation, monikers, type libraries, structured storage, and NTLM authentication on OpenVMS.

COM is not available on OpenVMS VAX. For more information, refer to the HP COM for OpenVMS Software Product Description (SPD 70.45.xx).

OpenVMS Enterprise Directory

OpenVMS Enterprise Directory, based on the X.500 standard, delivers robust and scalable directory services across intranets, extranets, and the Internet to customers, suppliers and partners. It combines the best of both industry standard LDAPv3 and X.500 capabilities. The Lightweight Directory Access Protocol (LDAP) support allows access by a myriad of LDAP clients, user agents, and applications. The X.500 support brings very high performance, resilience, advanced access controls, and easy replication across the enterprise.

Certified with Entrust/PKI 5 and Baltimore UniCERT 3.5.2, at sign-on this directory ensures that all users are authenticated with zero latency and that each can access only those resources they are authorized to use.

OpenVMS Enterprise Directory can contain information about anything of interest, including people, systems, network resources, applications, authentication certificates and databases. Both the established DAP interface and the LDAPv3 interface can be accessed simultaneously by disparate applications, thereby delivering full integration with existing environments.

For more information, refer to the HP OpenVMS Enterprise Directory Software Product Description (SPD 40.77.xx).

Reliable Transaction Router (RTR)

Reliable Transaction Router (RTR) is object-oriented, fault-tolerant, transactional messaging middleware used to implement highly extensible, distributed applications using client/server technology. Reliable Transaction Router provides a multicomponent software model in which clients running on frontends, routers, and servers running on backends cooperate to provide reliable service and transactional integrity. RTR components are managed from an easy-to-use web interface.

Reliable Transaction Router enables computing enterprises to deploy distributed applications on OpenVMS systems. For additional information, refer to the HP Reliable Transaction Router for OpenVMS Software Product Description (SPD 51.04.xx). For Integrity servers, RTR is included in the Mission Critical Operating Environment (MCOE).

Documentation

Complete online documentation is provided for all the components in this package.

Hardware Requirements

Hardware Configuration

All components in this package require a valid OpenVMS AlphaServer or HP Integrity server hardware configuration as defined in the Software Product Description (SPD) for the OpenVMS Operating System:

- HP OpenVMS Alpha V7.3-1 and V7.3-2, SPD 25.01.xx
- HP OpenVMS Alpha V8.3 and HP OpenVMS for Integrity Servers V8.3-1H1, SPD 82.35.xx

Additional hardware requirements, if any, can be found the release notes or installation guide for the individual components.

Disk Space Requirements

Approximate disk space requirements can be found in the release notes or installation guide for the individual components. The actual disk space required may vary depending on the system environment, configuration, and software options.

Software Requirements

Detailed software prerequisites and requirements, including ECOs and patches, can be found in the release notes or installation guide for the individual components.

Growth Considerations

The minimum hardware and software requirements for the components in any future version of this package may be different from the requirements for the current version.

Software Licensing

The software in this package is furnished only under a license and the license is required to use the software. All components in this package are bundled with the OpenVMS Alpha or I64 operating systems. Several of the components are additionally bound by an open source software license.

For more information about HP licensing terms and policies, contact your local HP office or visit the Software Licensing site at http://licensing.hp.com/swl/view.slm?page=index.

Ordering Information

This package is bundled with the OpenVMS Alpha or I64 operating systems and is obtained by ordering the media kit for the desired operating system.

Distribution Media

For OpenVMS Alpha:

The OpenVMS Application Modernization and Integration Infrastructure Package is distributed as part of the OpenVMS Alpha Software Products Library distribution:

- OpenVMS Alpha Software Layered Products Library Package (QA-03XAA-H8) (binaries and online documentation)
- OpenVMS Alpha Software Products Library (QA-4KL8A-A8) (binaries only)

For OpenVMS I64:

The OpenVMS Application Modernization and Integration Infrastructure Package is part of the HP OpenVMS Operating Environment (OE) packages:

- Foundation OE Media (BA322AA)
- Enterprise OE Media (BA323AA)
- Mission Critical OE Media (BA324AA)

Software Warranty

This software product is provided by HP with a 90-day conformance warranty in accordance with the HP warranty terms applicable to the license purchase.

Software Product Services

A variety of service options are available from HP. For more information, contact your local HP account representative or distributor. Information is also available at www.hp.com/hps/software.

Component	Services
Secure Web Server including PHP, Perl, Java Servlet, and JSP support	Included with OpenVMS support contract.
Secure Web Browser	Included with OpenVMS support contract.
J2SE™ Development Kit (JDK) for the OpenVMS Operating System for the Java™ Platform	Included with OpenVMS support contract.

XML Technology	Included with OpenVMS support contract.
SOAP Toolkit	Included with OpenVMS support contract.
Universal Description, Discovery, and Integration (UDDI) Client Toolkit	Included with OpenVMS support contract.
Web Services Integration Toolkit (WSIT)	Included with OpenVMS support contract.
Distributed NetBeans	Included with OpenVMS support contract.
BridgeWorks	Included with OpenVMS Alpha support contract.
OPC Transport (Integrity only)	Included with OpenVMS Integrity support contract.
COM for OpenVMS	Included with OpenVMS Alpha support contract.
Enterprise Directory	Sold separately.
Reliable Transaction Router (RTR)	Sold separately.