Software Product Description

PRODUCT NAME: VAX Rdb/ELN, Version 2.3
(Relational Database Management System)

DESCRIPTION

VAX Rdb/ELN is a relational database management system designed for dedicated applications on systems running in the VAXELN application environment.

VAX Rdb/ELN applications are developed using the VAXELN Toolkit on a host VMS system. The resulting bootable, VAXELN-based Rdb/ELN applications are then moved to the VAXELN target system using disk media or an Ethernet Local Area Network (LAN) link. The application program executes on the target system as a dedicated database system. The network link to the host development system may be used for remote debugging.

Users are expected to have the necessary hardware to provide both host development and target execution environments. Rdb/ELN cannot be run in the development environment other than for debugging purposes. Debugging an application in this manner is not a feature of VAXELN, as VAXELN applications cannot run on VMS.

Features

Data Definition Language (DDL) Compiler (ERDL)

- Defines databases, relations, views, fields, and indexes
- Modifies definitions of fields and relations
- Deletes definitions of relations, fields, views and indexes
- Restructures databases on-line, without unload/reload
- Adds comments to definitions of relations, views, fields, and indexes

Data Manipulation Language (DML)

- Uses block structured data manipulation statements, similar to VAX DATATRIEVE
- Performs standard data manipulation operations: store, retrieve, update, and delete
- Performs standard relational operations: select, join, and project

- Can access multiple databases in the same program

- Manipulates data using:

  — Interactive DML statements in ERQL (Relational Query Language)

  — Precompiled DML statements in VAXELN Pascal and VAX C programs

  — VAX DATATRIEVE from a VMS system with Rdb/VMS capability

- Optimizes queries automatically using:

  — Index selection on one or more fields in a relation

  — Join order

  — Join by sort/merge

  — Multi-index selection

  — Automatic elimination of duplicate records using the "project" feature

- Performs atomic transactions completed by commit or rollback

Data Dictionary

- Stores data definitions in the database file itself, in the form of relations

- Allows retrieval and modification of data definitions

Database Utilities

- Provide Logical backup/restore

- Conversion utility provides a standard backup format which allows a Data base to be restored to either a Rdb/VMS format or an Rdb/ELN format.

Relational Database Query Language (ERQL)

- Supports all data manipulation operations: store, retrieve, update, and delete

- Provides on-line help

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- Executes in both development and target environments

Concurrency and Integrity Controls

- Full concurrent access (storage, retrieval, update, and deletion) in a multi-user environment

- Concurrent access by multiple applications to the same database

- Ability to trade off between high consistency and high concurrency for each application

- Ability to change from high consistency to high concurrency and back within a program

Integrity

- Rollback of failed transactions, both automatic and program-controlled

- Validity checking at the field level using a VALID IF clause in the field definition

Languages

- Precompiler support for VAXELN Pascal and VAX C with use of a generic precompiler

Physical Storage Characteristics

- Each database is kept in a single file. Individual database files cannot span multiple disk volumes.

Relation Structure

- Duplicate records can be eliminated using the ''unique index'' feature.

- Ordering of fields on storage or retrieval is not required.

Storage Structure

- B-Tree indexes on relations

- Periodic reorganization of database NOT required

Datatypes

- ASCII text

- Varying text

- Date

- Signed word (16-bit) integer

- Signed longword (32-bit) integer

- Signed quadword (64-bit) integer

- Single precision floating point (F_floating)

- Double precision floating point (G_floating)

- Segmented strings for storing large amounts of unstructured data, such as documents, voice, or graphics

Remote Database Access

Application programs developed to access VAX Rdb/ELN databases and running under VAXELN on a given node in a DECnet network can:

- Access VAX Rdb/ELN databases on the same node

- Access VAX Rdb/ELN or VAX Rdb/VMS databases on other nodes in the network

During Application development cycles, the Rdb/ELN database may be built and verified under VMS. This database may, under limited conditions, be accessed remotely from an Rdb/ELN application.

Limits and Parameters

- Maximum number of relations and views in a database: 32,767

- Maximum number of bytes in a record: 32,767

- Maximum index key size: 200 bytes

- Maximum length of a database object name: 31 characters

- Maximum size of database file: limited by physical device

Documentation

- *VAX Rdb/ELN Installation Guide*

- *VAX Rdb/ELN Reference Manual*

- *VAX Rdb/ELN Guide To Application Development*

- *VAX Rdb/ELN Technical Overview*

- *VAX Rdb/ELN Release Notes*

- *VAX Rdb/ELN Guide to Data Manipulation*

- *RDML Reference Manual*

HARDWARE REQUIREMENTS

VAX, MicroVAX or VAXstation configuration as specified in the System Support Addendum (SSA 28.03.09-x).

SOFTWARE REQUIREMENTS*

For Development Systems:

VMS Operating System

VAXELN Toolkit

DECnet-VAX

* Refer to the System Support Addendum (SSA 28.03.09-x) for availability and required versions of pre-requisite/optional software.

ORDERING INFORMATION

For Rdb/ELN:

Software Licenses: QL-D07A*-**
Software Media: QA-D07A*-**
Software Documentation: QA-D07AA-GZ
Software Product Services: QT-D07A*-**

For the Rdb/ELN Runtime System:

Software Licenses: QL-D08A*-**

* Denotes variant fields. For additional information on available licenses, services and media, refer to the appropriate price book.

SOFTWARE LICENSING

The availability of this purchase option does NOT imply that VAX Rdb/ELN supports the use of a single shared database by all the CPUs in a VAXcluster.

Single-Use License Option for VAX Rdb/ELN Target Systems

If you have VAX Rdb/ELN installed on a CPU fully licensed for that product and you wish to use the VAX Rdb/ELN Target System portion of it on an additional CPU, you can purchase a Single-Use License for Target System. This license gives you the right to use only the Target System and does not include software warranty. Additionally, a VAXELN Target System License is require for execution.

This software is furnished under the licensing provisions of Digital Equipment Corporation's Terms and Conditions. For more information about Digital Equipment Corporation's licensing terms and policies, contact your local Digital office.

LICENSE MANAGEMENT FACILITY SUPPORT

This layered product supports the VMS License Management Facility.

License units for this product are allocated on a CPU-capacity basis.

For more information on the License Management Facility, refer to the VMS Operating System Software Product Description(SPD 25.01.xx) or the *License Management Facility* manual of the VMS Operating System documentation set.

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

SOFTWARE PRODUCT SERVICES

A variety of service options are available from Digital. For more information, please contact your local Digital office.

SOFTWARE WARRANTY

Warranty for this software product is provided by Digital with the purchase of a license for the product as defined in the Software Warranty Addendum of this SPD.

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System Support Addendum

PRODUCT NAME: VAX Rdb/ELN, Version 2.3   **SSA 28.03.09-A**
(Relational Database Management System)

HARDWARE REQUIREMENTS

Host Processors Supported

VAX: VAX 4000 Model 200 Series,
              VAX 4000 Model 300 Series,
              VAX 6000 Model 200 Series,
              VAX 6000 Model 300 Series,
              VAX 6000 Model 400 Series,

              VAX 8200, VAX 8250, VAX 8300, VAX 8350,
              VAX 8500, VAX 8530, VAX 8550, VAX 8600,
              VAX 8650, VAX 8700, VAX 8800, VAX 8810,
              VAX 8820, VAX 8830, VAX 8840
              VAX 9000-210, VAX 9000 Model 400 Series

              VAX-11/730, VAX-11/750, VAX-11/780, VAX-
              11/785

MicroVAX: MicroVAX II, MicroVAX 2000,
              MicroVAX 3100, MicroVAX 3300,
              MicroVAX 3400, MicroVAX 3500,
              MicroVAX 3600, MicroVAX 3800,
              MicroVAX 3900

VAXstation: VAXstation II, VAXstation 2000,
              VAXstation 3100, VAXstation 3200,
              VAXstation 3500, VAXstation 3520,
              VAXstation 3540

Processor Restriction

The VAX-11/782 processor is not supported by the VMS
Operating System V5.0 or later.

Target System Processor Support

VAX: VAX 4000 Model 200,
              VAX 4000 Model 300
              VAX 6000 Model 200 Series,
              VAX 6000 Model 300 Series,
              VAX 6000 Model 400 Series

              VAX 8200, VAX 8250, VAX 8500, VAX 8530,
              VAX 8550, VAX 8700, VAX 8800, VAX 8810

              VAX-11/730, VAX-11/750

MicroVAX: MicroVAX II, MicroVAX 2000, MicroVAX
              3100, MicroVAX 3300, MicroVAX 3400,
              MicroVAX 3500, MicroVAX 3600, MicroVAX
              3800, MicroVAX 3900

Board Products: KA620-BA

rtVAX Products: rtVAX 1000, rtVAX 3200, rtVAX 3300,
              rtVAX 3400, rtVAX 3500, rtVAX 3600,
              rtVAX 3800

              rtVAX 4000 Model 200 and 300,
              rtVAX 6000 Model 200 and 300,

              rtVAX 8550, rtVAX 8700,
              rtVAXstation 3100 Models 30 and 38,
              rtVAX 3305

IVAX Products: IVAX 620, IVAX 630

VAXstation: VAXstation 2000, VAXstation 3100,
              VAXstation 3150, VAXstation 3200,
              VAXstation 3500, VAXstation II/GPX

Note: VAXstation support is for color only.

Processors Not Supported as Targets

VAX:	VAX 6312, VAX 6333, VAX 8300, VAX 8350, VAX 8600, VAX 8650, VAX 8820, VAX 8830, VAX 8840
	VAX-11/780, VAX-11/782, VAX-11/785
rtVAX Products:	rtVAX300
VAXstation:	VAXstation II, VAXstation 3520, VAXstation 3540

Other Hardware Requirements

For Development Systems:

Any valid VAXELN V4.1 or V4.2 Development System configuration.

Refer to the VAXELN Toolkit Software Product Description (SPD 28.02.xx) for valid VAXELN Development Configurations.

Disk Space Requirements (Block Cluster Size = 1):

Disk space required for installation:	16,062 blocks (8,031K bytes)
Disk space required for use (permanent):	8,600 blocks (4,300K bytes)

These counts 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.

For VAX-11/730 Systems:

Dual RL02 disk drives installed on a VAX-11/730 system is not a supported configuration.

For Target Systems:

Any valid VAXELN Version 4.2 Target System configuration.

Refer to the VAXELN Toolkit Software Product Description (SPD 28.02.xx) for valid VAXELN Target System Configurations.

OPTIONAL HARDWARE

Refer to the VAXELN Toolkit System Support Addendum (SSA 28.02.12-x) for supported Optional Hardware.

CLUSTER ENVIRONMENT

This layered product is fully supported when installed on any valid and licensed VAXcluster* configuration without restrictions. The *HARDWARE REQUIREMENTS* sections of this product's Software Product Description and System Support Addendum detail any special hardware required by this product.

* V5.x VAXcluster configurations are fully described in the VAXcluster Software Product Description (29.78.xx) and include CI, Ethernet and Mixed Interconnect configurations.

SOFTWARE REQUIREMENTS

For Development Systems:

VMS Operating System V5.1 - V5.4

Layered Products:

VAXELN Toolkit V4.1 - V4.2

VAX Rdb/VMS V4.0

DECnet-VAX V5.0 - V5.1 is required for down-line loading, remote debugging, and communicating between VAXELN and VMS.

VMS Tailoring

For VMS V5.x systems, the following VMS classes are required for full functionality of this layered product:

• VMS Required Saveset

• Network Support (If using the VAXELN Remote Debugger feature)

• Programming Support

• Utilities

For more information on VMS classes and tailoring, refer to the VMS Operating System Software Product Description (SPD 28.03.xx).

OPTIONAL SOFTWARE

Refer to the VAXELN Toolkit System Support Addendum (SSA 28.02.12-x) for for optional software which may be used.

GROWTH CONSIDERATIONS

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

DISTRIBUTION MEDIA

Disk: RA60 Disk Cartridge, RX33 Floppy Diskette

Tape: 9-track 1600 BPI Magtape, TK50 Streaming Tape

ORDERING INFORMATION

Development System:

Software Licenses: QL-D07A*-**
Software Media: QA-D07A*- **
Software Documentation: QA-D07AA-GZ
Software Product Services: QT-D07A*-**

Target System:

Software Licenses: QL-D08A*-**

* Denotes variant fields. For additional information on available licenses, services and media refer to the appropriate price book.

The above information is valid at time of release. Please contact your local Digital office for the most up-to-date information.

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