Software Product Description

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

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 prerequisite/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.

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