Software Product Description

PRODUCT NAME: VAX Data Distributor, Version 2.2 **SPD 27.76.05**

DESCRIPTION

VAX Data Distributor manages the distribution of relational data. Operations called transfers define what data and data definitions are to be moved (the source) and where they are to be moved to (the target). The target need not be on the same system as the source.

Distributing data in this way has several benefits, particularly when the target is on a different system from the source:

- Users can query a database local to them rather than having to access a remote database. This provides faster and more regular access.
- Congestion on the source database is reduced as a result of the use of the target.

Methods of Data Distribution

There are three transfer types: extraction, extraction rollup, and replication. For each type of transfer, the source can be all the table definitions and data within the source database or databases, or a subset of those definitions and data.

Extraction

The source database can be a VAX Rdb/VMS database, or one from another database management system, such as DB2 (tm), accessed using one of Digital's interoperability products, such as VIDA for DB2™.

The target can be a VAX Rdb/VMS database, or a set of tables created by VAX Data Distributor in an existing VAX Rdb/VMS database. If it is a database, a new version is created every time the transfer executes. If it is a set of tables, the data in the tables are deleted and new data, from the source, are inserted every time the transfer executes.

Users can update the target. However, their updates are not reflected in the new version of the target created when the transfer next executes.

Extraction Rollup

The same range of source databases is available for extraction rollup as for extraction. However, an extraction rollup has more than one source database. The source databases can be of different types, for example, one VAX Rdb/VMS and one DB2 database.

The target must be a VAX Rdb/VMS database. A new version is created every time the transfer executes. As for extractions, it can be updated by users, but updates will not be reflected in the new database created when the transfer next executes.

Replication

The source database must be a VAX Rdb/VMS database.

The target can be a VAX Rdb/VMS database, or a set of tables created by VAX Data Distributor in an existing VAX Rdb/VMS database. The target is created when the transfer first executes (is initialized). Subsequent executions of the transfer apply the updates that have been applied to the source since the last transfer to the target.

Hence, the difference between replication and the other two styles of transfer is that replication makes the data at the target identical to that at the source by updating it rather than rebuilding it. However, if necessary, the transfer can be reinitialized and, in this case, the target is rebuilt.

Users must not update the target. However, if the target is a set of tables within an existing database, other tables in the database can be updated (unless they are the target of other replication transfers).

Other Features

Schedules

For every transfer, a schedule can be defined, specifying when the transfer is to execute. The transfer can also be executed by the transfer definer at a time when it is not scheduled.

Pre- and Post-Transfer Command Procedures

A transfer can have associated with it DCL command procedures that execute before and/or after a transfer executes. Potential uses of such procedures include:

- Making the network between the source and target systems available.
- Notifying users by VAXmail that the transfer has completed and reporting on the status with which it did so.
- Creating indexes on tables in the target database.

Multiple Transfers

A database can be the source for more than one transfer. For example, a VAX Rdb/VMS database could be the source for a replication of some tables, an extraction of some columns from other tables, and also one of the source databases for an extraction rollup including yet another subset of the data.

Since the target of an extraction or replication can be a set of tables in an existing database, such a database can be the target of more than one transfer. However, it cannot be the target of an extraction rollup, and no table within the database can be the target of more than one transfer.

A database can be both a source and a target database. For example, a database may be the target of a replication transfer, and may also be the source of other replications.

Centralized Storage of VAX Data Distributor Information

Transfer and schedule definitions and the status of every transfer are consolidated in a VAX Rdb/VMS database known as the transfer database. This database services a VAX or a VAXcluster.

Syntax

The interactive SQL and RDO utilities of VAX Rdb/VMS include VAX Data Distributor statements, such as:

- CREATE TRANSFER, in which the source and target are specified. Specification of the source includes selecting the tables, and the rows and columns of those tables, to be transferred.
- CREATE SCHEDULE, in which the frequency of execution is specified.
- SHOW TRANSFER, which displays the definition of the transfer and that of the associated schedule if there is one, and the status of the transfer, including the date and time at which it last executed.

Security

To create a transfer, it is necessary to have SELECT access to the source database and to the tables transferred. To create a replication, it is also necessary to have CREATETAB privilege on the source database.

If the target database is created by VAX Data Distributor, it is created with the VAX Rdb/VMS default protection. If it is necessary to be more restrictive for an extraction or replication, the database can be created in advance and the target specified as tables within it. Tables are always created with the VAX Rdb/VMS default protection. This can be altered in a post-transfer DCL command procedure.

The data in the transfer database are protected from direct access by users lacking the required privileges.

Relationships with Other Products

VAX Data Distributor requires VAX Rdb/VMS. It can be used with any one of the three VAX Rdb/VMS packaging options. Sites needing to tailor targets (for example, creating indexes) must use either the interactive SQL utility or the RDO utility, both of which are supplied with the Interactive and Full Development options of VAX Rdb/VMS.

Since these utilities can perform operations on remote as well as local databases, the operations can be performed from another node on the network provided the VAX Rdb/VMS Run-Time Only option is installed in the target VAX.

If CDD/Plus is present on the target system, data definitions from target databases can be placed in the dictionary by using the INTEGRATE statement of the VAX Rdb/VMS SQL or RDO utility.

In addition to VAX Rdb/VMS, source databases for extractions and extraction rollups can be databases accessed via VIDA for DB2™ or DEC RdbAccess for ORACLE® on VMS.

Where to Install VAX Data Distributor

It is not necessary to install VAX Data Distributor on every system involved in a transfer. It must be installed:

- On the source system of a replication.
- On either the source or the target system, or both, of an extraction or extraction rollup.

Limitations

The syntax to specify as the target, not a new database, but a set of tables within an existing database, is available in interactive SQL but not in RDO. Since interactive SQL is not provided with the Run-Time Only option of VAX Rdb/VMS, use of this feature requires either the Interactive or Full Development option of VAX Rdb/VMS.

Record selection, conditional and value expressions available in a transfer definition are a subset of those supported by the source database management system.

Indexes, constraints, triggers, collating sequences and ACLs are not copied to target databases.

VAX Data Distributor does not provide commit-time replication of changes. That is, updates to the source are transferred to the target when a replication transfer executes, not whenever an update transaction is committed on the source database.

HARDWARE REQUIREMENTS

VAX, MicroVAX, VAXstation, or VAXserver configuration as specified in the System Support Addendum (SSA 27.76.05-x).

SOFTWARE REQUIREMENTS*

VAX Rdb/VMS (any of the three options)

For Systems Using Terminals (No DECwindows Interface):

VMS Operating System

For Workstations Running VWS:

VMS Operating System
VMS Workstation Software

* Refer to the System Support Addendum (SSA 27.76.05-x) for availability and versions of required software and for information regarding components of VMS DECwindows.

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