COMPAQ

Software Product Description

PRODUCT NAME: Compaq SNA Data Transfer Facility for OpenVMS, Version 3.3A **SPD 27.85.10**

This SPD describes *Compaq SNA Data Transfer Facility for OpenVMS*, which is available for the OpenVMS Alpha and OpenVMS VAX platforms. All information applies to both platforms unless otherwise indicated.

DESCRIPTION

The *Compaq SNA Data Transfer Facility for OpenVMS* (DTF/VMS) is a layered software product that provides data transfer capabilities between IBM OS/390 systems in a Systems Network Architecture (SNA) environment and Compaq nodes in a Compaq network.

The Data Transfer Facility for OpenVMS software communicates with the Mainframe Data Transfer Facility software (MDU) running on the IBM system.

DTF for OpenVMS supports VAX and Alpha systems in a DECnet or TCP/IP environment. Access between the cooperating Compaq and IBM environments is via one of the following products:

TCP/IP or DECnet Connections

- *Compaq SNA Peer Server*
- *Compaq SNA Domain Gateway*
- *Compaq SNA Access Server for Windows NT*
- *Compaq SNA Server for OpenVMS Alpha*, a layered product that supports local access as well as TCP/IP and DECnet clients.

DECnet Only Connections

- *Compaq DECnet SNA Gateway for Synchronous Transport*
- *Compaq DECnet SNA Gateway for Channel Transport*
- *Compaq SNA Server for OpenVMS VAX*, a layered product that supports local access as well as remote DECnet clients.

HIGHLIGHTS

The following paragraphs briefly highlight the features of DTF for OpenVMS. More detailed information is given in the Features section of this SPD.

Client/Server-Style Operation

The DTF for OpenVMS product provides a client/server style of operation. The OpenVMS DTF server can support file operations between IBM OS/390 and OpenVMS in a DECnet or TCP/IP environment. No additional software is required on other nodes in the OpenVMS network (except for OpenVMS recoverable copy operations). Refer to the Configuration section of this SPD for more information.

Ease of Use

DTF for OpenVMS provides a familiar user interface for both Compaq and IBM users. This feature supports easy application development and reduces staff training.

Comprehensive, Bidirectional Access

The DTF for OpenVMS product enables bidirectional file transfer between all DTF-supported nodes and IBM OS/390 systems.

Checkpoint and Recovery

DTF for OpenVMS provides OpenVMS and IBM users with checkpoint and recovery support in the event of a system or network failure. This feature allows DTF to resume an interrupted recoverable copy operation when the network returns to a normal state. This saves significant time and system resources when large files are transferred.

File Backup

DTF for OpenVMS allows OpenVMS users to target IBM disks and tapes for backup and restore operations. In large co-resident Compaq and IBM sites, this capability optimizes system resource usage. Users have the ability to include an allocation space qualifier when backing up files to target IBM disks to ensure proper disk space availability.

Remote Job Submission

DTF for OpenVMS users can submit jobs remotely from all clients.

Post-Processing

Using DTF for OpenVMS, OpenVMS, and IBM, users can provide a post-processing file to be executed after a file transfer is completed. This feature allows OpenVMS and IBM users to logically connect the running of a batch job to the successful completion of a DTF file transfer. This makes the implementation of distributed processing functions significantly easier to synchronize between IBM applications and OpenVMS-based applications.

Record-Level Access

DTF for OpenVMS supports record-level access from OpenVMS systems to IBM OS/390 systems.

Supported File Types

DTF for OpenVMS supports multiple file types (RMS, VSAM, and BSAM), allowing easy applications development. DTF also supports mixed case IBM file specifications.

HSM Support

DTF for OpenVMS supports IBM's Hierarchical Storage Management (HSM) facility.

IBM Enterprise Architecture and SMS Support

DTF for OpenVMS runs in compliance with IBM's Enterprise Architecture and will support SMS-managed data sets (refer to the Supported IBM Configurations section).

Data Translation Using Load Balancing and Performance Tuning

DTF for OpenVMS supports text translation from Compaq DMCS (Digital Multinational Character Set, a superset of ASCII) to EBCDIC and vice versa on a record-by-record basis. DTF for OpenVMS supports load balancing and performance tuning between the IBM system and the OpenVMS DTF server node by allowing users to select which system performs the text translation. Enhanced performance of the OpenVMS DTF server often results when this translation is performed on the IBM system.

Data Security

DTF for OpenVMS controls access and protects valuable data with superior security capabilities. The mainframe component supports the industry-standard SAF security interface that runs on IBM machines.

Proxy access to the IBM system allows OpenVMS users to access the OS/390 system without IBM userids and passwords flowing over the network connections.

Server Management

The DTF for OpenVMS product includes a management utility to manage the OpenVMS DTF server.

Event Logging

The mainframe component logs events which can be used for historical inquiry or accounting. System programmers can easily write specialized accounting and bill-back reports using DTF's logs.

Components

There are three components to the *Compaq SNA Data Transfer Facility for OpenVMS* Version 3.3A product:

- Data Transfer Facility server (OpenVMS DTF server), Version 3.3
- Data Transfer Facility utilities (OpenVMS DTF utilities), Version 3.3
- Mainframe Data Transfer Facility (MDU), Version 3.2

OpenVMS DTF Server

The OpenVMS DTF server software can be installed on any OpenVMS Alpha or OpenVMS VAX system in a network containing an SNA gateway or server. The node that is running the OpenVMS DTF server software is referred to as the server node. All DTF file requests go through this server node which communicates with the Mainframe DTF system using an SNA gateway or server. The DTF server software also performs text translation (DMCS/EBCDIC). However, this can be done optionally by the MDU software. The OpenVMS DTF server software includes the OpenVMS DTF utilities software described in the next section.

OpenVMS DTF Utilities

The OpenVMS DTF utilities software is an optional component that can be installed on any OpenVMS system where users wish to transfer files using the recoverable copy feature. The utilities software should also be installed if IBM users will be requesting recoverable copies involving that OpenVMS node. The utilities software consists of a server management utility and a checkpoint/recovery utility (TRANSFER/DTF). The OpenVMS DTF utilities software communicates with the OpenVMS DTF server software to accomplish the data transfer. It is not necessary to install the OpenVMS DTF utilities software on the server node since these utilities are included in the OpenVMS DTF server software package.

Mainframe DTF

Mainframe DTF (MDU) is a layered software product that operates on an IBM mainframe. The Mainframe DTF (MDU) software can be installed on any IBM S/370-class, IBM S/390-class, or IBM zSeries Server running in 31-bit mode.

MDU accepts file operation commands from the OpenVMS DTF server software and maps them into OS/390 file commands to perform the operation. It also provides interfaces so TSO users can issue recoverable and non-recoverable copy commands in interactive or batch mode. MDU software consists of two parts: a VTAM application program that controls the communications with the OpenVMS DTF server nodes for the purpose of transferring files, and user interfaces. The three user interfaces are: a TSO command processor, a single-line command interface (REXX required), and an ISPF dialog.

The MDU software can also be used to communicate with Compaq Tru64 UNIX systems. Refer to *Compaq Data Transfer Facility for Tru64 UNIX* Software Product Description 60.54.xx.

Configuration

MDU must be installed on each IBM system with which users want to communicate. The Compaq network requires one OpenVMS DTF server component installed on a OpenVMS system, and may require multiple server component installations depending on the amount of use of DTF. Other OpenVMS nodes in the network do not require any additional software since DTF allows users to use standard file transfer commands to access IBM files. The OpenVMS DTF utilities software is required only if a particular OpenVMS system's users need the recoverable copy feature or if IBM users desire recoverable copy operations to that OpenVMS system. Recoverable copy works only to OpenVMS nodes with the OpenVMS DTF server software or the OpenVMS DTF utilities software installed.

FEATURES

The DTF for OpenVMS product uses a variety of familiar user interfaces to make users more productive. Users do not have to learn new commands and procedures.

Users in the OpenVMS environment can issue standard DCL commands, like COPY, TYPE, DIRECTORY, and so on. Alternatively, they can use the Record Management System (RMS) programming interface or the TRANSFER/DTF utility for data exchange between OpenVMS and IBM systems.

IBM OS/390 users can access and transfer data by using the TSO DTF command processor, the TSO ISPF panels, or the single-line interface. The TSO command processor can also be invoked in batch mode.

DTF Access from OpenVMS Clients

OpenVMS DTF users can initiate non-recoverable or recoverable, bidirectional file transfers between IBM DTF clients and themselves. DTF supports the following OpenVMS DCL commands.

Note: Some of the qualifiers associated with these DCL commands are subject to restrictions when used with DTF.

APPEND	DELETE	SEARCH
BACKUP	DIFFERENCES SUBMIT	REMOTE
CLOSE	DIRECTORY	TYPE
CONVERT	EXCHANGE/NETWORK	WRITE
COPY	OPEN	
CREATE	READ	

DTF Access from OS/390

IBM DTF users can initiate nonrecoverable or recoverable, bidirectional file transfers between OpenVMS DTF clients running the OpenVMS/DTF utilities software and themselves. In addition, they can initiate nonrecoverable, bidirectional file transfer between all other DTF clients (including other IBM systems) and themselves. OS/390 TSO users have the following commands available to transfer files to or from other DTF clients.

DTFSEND	DTFRECV	DTFRESUM
DTF command processor	DTF ISPF panels	DTF non-ISPF panels

Checkpoint and Recovery

Checkpoint and recovery capabilities ensure that data remains accurate and intact, even in the event of system or network failure. When OpenVMS users transfer files using the TRANSFER/DTF utility, it automatically resumes an interrupted file-transfer process with no loss of data when communications between sending and receiving systems is reestablished. Checkpoint and recovery is supported for non-VSAM files that are disk or tape resident. Checkpoint and recovery is not supported on VSAM files.

IBM users have a similar checkpoint and recovery feature. A recoverable copy operation performed from an IBM system sets environment variables (CLIST in OS/390). If the transfer terminates with a network error, these variables contain information to allow the user to resume the transfer.

File Backup

DTF for OpenVMS allows OpenVMS users to back up and restore their disks directly to IBM tapes or disks using the OpenVMS BACKUP command. Users have the ability to include an allocation space qualifier when backing up files to target IBM disks to ensure proper disk space availability.

Remote Job Submission

OpenVMS users can submit JCL files on the IBM system to be executed by JES or by a batch machine. These users can use the standard file operation commands to initiate the job submission. For example, OpenVMS users use SUBMIT/REMOTE. Users will not get the status of the job completion. IBM DTF users can submit jobs by using the post-processing feature described in the next section.

Post-Processing

Post-processing is the ability to submit a DCL command procedure or OS/390 JCL procedure after a file transfer is completed. IBM users can use the post-processing feature from either the command processor or the panel interface. OpenVMS users can use the post-processing feature only through the TRANSFER/DTF utility.

Record-Level Access

DTF for OpenVMS allows an OpenVMS user record-level access to IBM files by means of an RMS application or DCL commands. DTF does not support record-level access initiated from IBM to OpenVMS RMS files.

Supported File Types

All OpenVMS file types are supported. ODS-5 Extended File Specification is not supported.

For IBM OS/390 systems, supported non-VSAM file types are those with the physical sequential data set organization. This includes normal sequential files as well as partitioned data set members. Both disk-resident and tape-resident non-VSAM files are supported. Supported VSAM file types include entry-sequenced data sets (ESDS), relative-record data sets (RRDS), and key-sequenced data sets (KSDS).

DTF for OpenVMS provides an option for users to overcome the null record restriction by substituting a record containing a character or value chosen by the user. A mixed-case option supports applications on the IBM side that create file specifications that are case sensitive. The case qualifier supports file specifications that contain lower case characters.

HSM Support

MDU supports the Hierarchical Storage Management (HSM) facility and allows users to recall migrated data sets. IBM system programmers can tailor the number of concurrent outstanding HSM requests as well as device recall capability.

SMS Support

MDU supports the OS/390 Storage Management Subsystem (SMS) facility.

Data Translation

DTF for OpenVMS provides two options for data translation: no data translation at all and Compaq DMCS (Digital Multinational Character Set, a superset of ASCII) to EBCDIC and vice versa.

- Users can specify that DTF for OpenVMS should perform no data translation during a file transfer. This option is useful for transferring image files.
- By default, DTF for OpenVMS performs data translation from DMCS to EBCDIC and vice versa on a record-by-record basis. This is the option normally used to transfer text files.

By default, data translation is performed on the OpenVMS DTF server node. To decrease the load on the OpenVMS DTF server, the server manager can optionally specify that data translation (DMCS/EBCDIC) occur on the IBM DTF system.

Data Security

Files on the IBM system are accessible only to Compaq users with valid access control information. MDU provides a standard user exit for security mechanisms through the System Authorization Facility (SAF) interface. For OpenVMS systems, security is maintained by using the standard file protection mechanism provided by the base operating system.

MDU also allows proxy information to be stored on the IBM system using standard IBM system security packages.

For ease of use, the proxy information allows OpenVMS users to perform file transfers without having to provide passwords for their files located on the IBM system.

Server Management

DTF for OpenVMS provides a management utility to manage the server account database, the file definition database, and the DTF proxy databases on the OpenVMS DTF server. The server account database allows the server to support file transfer requests to many different IBM DTF clients. The file definition database allows users to store the IBM file specifications for frequently accessed files. The proxy database allows the server manager to set up mappings that allow users to enter requests without specifying their IBM passwords. Refer to the *Data Security* section for more information.

Event Logging

MDU logs events which can be used for historical inquiry or for accounting usage. Historical logging can be used to characterize the use of MDU. Such information is necessary for decisions involving operating hours, performance tuning, and load analysis of the network and operating system. Account logging allows users of MDU functions to be recorded along with the resources they consume. The granularity of the information is sufficient to provide a bill-back capability. Implementation of the accounting and billing capability is handled with a user exit and can be customized on a per-site basis.

INSTALLATION

Installation services from Compaq are recommended for a customer's first purchase of this software product. These services provide for installation of the software product by an experienced software specialist.

HARDWARE REQUIREMENTS

Processors Supported

For a list of supported processors, refer to the OpenVMS Operating System for Alpha and VAX Software Product Description (SPD 25.01.xx).

Disk Space Requirements

DTF Server for OpenVMS (Block Cluster Size = 1):

	VAX	Alpha
Disk space required for installation:	5006 blocks	5547 blocks
Disk space required for use:	1987 blocks	3196 blocks

DTF Utilities for OpenVMS (Block Cluster Size = 1:)

	VAX	Alpha
Disk space required for installation:	2323 blocks	2462 blocks
Disk space required for use:	1101 blocks	1544 blocks

SOFTWARE REQUIREMENTS

Using *Compaq SNA Data Transfer Facility for OpenVMS* requires:

- OpenVMS Operating System for Alpha and VAX, Version 6.2, 7.2 (VAX), 7.2-1 (Alpha), 7.2-2 (Alpha), or 7.3 (SPD 25.01.xx).
- One of the following networking products appropriate for the version of OpenVMS:
  - TCP/IP Services for OpenVMS (SPD 46.46.xx)
  - DECnet for OpenVMS (Phase IV, SPD 48.48.xx)
  - DECnet-Plus (Phase V, SPD 50.45.xx for Alpha, SPD 25.03.xx for VAX).

Choose a networking option appropriate for OpenVMS Versions Version 6.2, 7.2 (VAX), 7.2-1 (Alpha), 7.2-2 (Alpha), or 7.3 from the following table:

OpenVMS	TCP/IP	DECnet IV	DECnet V
6.2	4.2	6.2	6.3
7.2	5.1	7.2	7.2
7.2-1	5.1	7.2	7.2-1
7.2-2	5.1	7.2	7.2-1
7.3	5.1	7.3	7.3

- One of the following SNA server or gateway products:
  - *Compaq DECnet SNA Gateway for Channel Support (SPD 29.76.xx)*
  - *Compaq DECnet SNA Gateway for Synchronous Transport (SPD 25.C6.xx)*
  - *Compaq SNA Domain Gateway (SPD 38.69.xx)*
  - *Compaq SNA Peer Server (SPD 51.08.xx)*
  - *Compaq SNA Server for OpenVMS Alpha (SPD 70.89.xx)*
  - *Compaq SNA Server for OpenVMS VAX (SPD 27.01.xx)*
  - *Compaq SNA Access Server for Windows NT (SPD 64.79.xx)*

- On the IBM System, Mainframe Data Transfer Facility (MDU) is required.

SOFTWARE LICENSING

This software is furnished under a license. For more information about Compaq's licensing terms and policies, contact your local Compaq office.

MDU Software License is by IBM Model Number regardless of the CPUs incorporated in a given IBM Model Number.

License Management Facility Support

The OpenVMS portions of this software product support the OpenVMS License Management Facility.

License units for this product are allocated on an Unlimited System Use basis.

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

GROWTH CONSIDERATIONS

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

DISTRIBUTION MEDIA

The DTF Server for OpenVMS and the DTF Utilities for OpenVMS are available as part of the OpenVMS Alpha and OpenVMS VAX Software Product Libraries on CD-ROM.

The software documentation is available as part of the OpenVMS Alpha and OpenVMS VAX Online Documentation Libraries on CD-ROM. Documentation in hardcopy format can be ordered separately.

MDU is available on 3480 cartridge tape.

SOFTWARE WARRANTY

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

The MDU software described in this SPD has been written in accordance with the following IBM System Integrity Standards:

- MVS System Integrity Standard as defined in IBM Programming Announcement P81-174 dated October 21, 1981

Warranty Limitations

Supported IBM Configurations

This software is supported with the following IBM software configurations:

Software Product	Version	Release
OS/390	2	10.0
zOS	1	1.0

Note: OS/390 and zOS are supported in 31-bit mode only.

ORDERING INFORMATION

OpenVMS Software

Software Licenses

DTF Server on OpenVMS Alpha: QL-205A*-AA
DTF Utilities on OpenVMS Alpha: QL-206A*-AA
DTF Server on OpenVMS VAX: QL-VEBA*-AA
DTF Utilities on OpenVMS VAX: QL-VEKA*-AA

Software Documentation QA-VEBAA-GZ

Media and documentation for this product are available on the OpenVMS Alpha and OpenVMS VAX Software Product and Online Documentation Libraries on CD-ROM. Documentation in hardcopy format can be ordered separately.

IBM Software

Mainframe Data Transfer Facility:

Software License: QL-1GQA9-AA
Software Media: QA-1GQAA-HP
Software Documentation: QA-1GQAA-GZ

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

SOFTWARE PRODUCT SERVICES

Installation

Installation provides comprehensive installation and of Compaq and non-Compaq hardware, software, and networks products. These products include systems, servers, upgrades, workstations, terminals, PCs, peripherals, network equipment, operating systems, and layered products. Optional pieces of the Installation offer include site planning and preparation, orientation, and other projects which are based on the installation of computer equipment (e.g. relocation services).

License Subscription

License Subscription provides the license rights to use all new versions of those products, which are released during the contract period. Also included are the rights to use certain server-resident products whose license is included in a corresponding client license.

Telephone Software Support

Software Support provides software problem identification and resolution and operational support for system managers, technical support/helpdesk personnel who manage Compaq and popular multivendor server software in either a standalone or networked environment. This service provides access both to technical resources to assist in problem diagnosis and resolution and to Compaq's information database. This combination of support resources will address system management questions and inquiries on a wide variety of topics including information on the latest product features, known problems and available solutions, and operational advice and assistance to help the system manager, system administrator better manage its information technology environment.

Please contact your local Compaq office for additional information on specific services in your area.

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