digital™

Software Product Description

PRODUCT NAME: DecmessageQ for UNIX®, Version 4.0 SPD 39.25.07

DESCRIPTION

DECmessageQ for UNIX is the UNIX Operating System implementation of a generic software message queuing bus that provides easy-to-use, efficient task-to-task communications among processes using DECmessageQ on OpenVMS, Digital UNIX®, HP-UX™, AIX®, MS®-Windows™, Windows NT®, Macintosh®, Solaris®, SunOS™, NCR Unix™.

A common call interface allows messages to be delivered via local interprocess communications for intra-CPU applications, or via Transmission Control Protocol/Internet Protocol (TCP/IP) and DECnet Digital UNIX, Windows NT and MS-Windows) for inter-CPU applications. Applications can be designed so client applications can be redeployed easily anywhere within the DECmessageQ network configuration, whether in a standalone node, a local area network (LAN), or a wide area network (WAN).

The DECmessageQ communications implementation is designed for easeof-use, expandability, and efficiency. Its features include:

- High speed local message delivery using local interprocess communications
- Remote message delivery via TCP/IP or DECnet for OpenVMS, Digital UNIX, Windows NT, and MS-Windows.
- Remote message delivery via TCP/IP for HP-UX, SunOS, Solaris, AIX, OS/2 and NCR Unix.
- Fully asynchronous and synchronous receipt of messages
- Priority queuing of messages
- Selective reception of messages by queue number or priority
- Shared input queues using Multi-Reader Queues (MRQ)

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- Dynamic binding of queue address to local and global queue references
- Support for global naming of queues to allow remote queue name look-ups without definition in groups initialization file
- Message broadcasting using Selective Broadcast Services (SBS)
- Set of message delivery options
- DECmessageQ Runtime Unix Server implementations for Digital Unix, HP-UX, AIX, SunOS, Solaris and NCR Unix
- Small footprint DECmessageQ Runtime Unix Client implementations for Digital Unix, HP-UX, SunOS, Solaris, AIX and NCR Unix
- A maximum of 999 queues per DECmessageQ Group
- A maximum of 32,000 DECmessageQ Groups
- User-settable timers with timer expiration delivered via messages placed in the user's primary queue
- Utilities for monitoring the network configuration and flow of messages
- Dynamic addition of CPUs to the communications network
- Message interface for retrieving DECmessageQ configuration information online
- Portable call interface
- Connectivity to DECmessageQ implementations on OpenVMS, Digital UNIX, HP-UX, AIX, Windows NT, MS-Windows, Solaris, SunOS, OS/2 and NCR Unix.
- Distributes broadcast messages to any number of registered recipients
- Self-describing messaging (SDM) provides automatic data marshaling between platforms that use different data formating
- Support for Large Messages up to 4MB
- Ability to change configuration data at runtime
- Support for API calls implementing link management
- Online documentation in HTML format

DECmessageQ for UNIX can also be used as an integration tool to merge many external events with the message queuing bus. In addition to integrating messages from local processes and remote processes, DECmessageQ also provides facilities for the integration of other events such as:

- Timer settings
- Simulated messages

- Other external events such as special hardware I/O

DECmessageQ Queues

DECmessageQ for UNIX provides three types of queues. A queue is a memory storage location for DECmessageQ messages. Any process can insert a message into any queue. These queues are accessed directly by DECmessageQ procedures. These procedures are called by user-written applications. DECmessageQ queue types are:

- Primary Queue (PQ) - Each process that attaches to the message queuing bus is assigned a Primary Queue. This queue is used to receive messages from processes using DECmessageQ.
- Secondary Queue (SQ) - Any process may attach to one or more secondary queues. These queues can also be used to receive messages. The order in which queues are scanned for messages is defined by the DECmessageQ selection rules.
- Multi-Reader Queue (MRQ) - A Multi-Reader Queue is a single shared queue that can be shared by any number of simultaneous readers.

Message Recovery Services (MRS)

Message Recovery Services for the DECmessageQ Message Queuing Bus extends data recovery to the level of pending messages. Using Message Recovery Services, the sender is relieved of the responsibility of tracking the progress of a message through its next level of processing. This functionality can be used both at the client and server sides of the application. Message Recovery Services enables users to selectively receive recoverable messages by specifying the in-memory queue depth of recoverable messages.

Message Recovery Services increase the robustness of DECmessageQ by providing applications with the ability to recover from message delivery failures due to:

- Application program abort
- Communication line failure
- System crash

Some of the application requirements addressed by MRS are:

- Sender wishes to insure delivery of messages when the receiving process is available but does not wish to monitor the delivery.
- Sender wishes to know that a message is recoverable to avoid the cost of reconstructing it but does not care when it is finally delivered.
- Receiver wishes to maintain a journal of all messages received by it for audit trail or reprocessing.

Message Recovery Services are primarily implemented by an MRS server, a non-privileged program attached to the DECmessageQ Message Bus. MRS actions are invoked by standard DECmessageQ send and receive message calls.

MRS is oriented toward messages, not processes; not all messages sent from or directed to a particular process need to be processed by MRS. This allows applications to selectively incur the additional processing imposed by MRS for just those messages that are not easily recovered. Message recovery characteristics are set by the sending process.

Selective Broadcast Services (SBS)

There are two important application requirements handled by this service. The first requirement is the ability to send a message to many targets without going through multiple application DECmessageQ send message requests. The second requirement is the ability to generate broadcast messages without the originator knowing the quantity or location of the target process(es).

Selective broadcast Services provide a conceptual broadcast stream of data. In this broadcast stream any process can insert a message. Any process can select messages from this broadcast stream for delivery. Messages may be selected using a set of rules that provide relational comparisons against DECmessageQ header information or user's message data information. The Selective Broadcase Services operate in a single server environment or between cooperating DECmessageQ servers. When the SBS is operating between nodes, it can operate using DECnet or TCP/IP services.

Delivery Options

DECmessageQ for UNIX provides the following set of delivery options:

- Datagram - A non-recoverable attempt is made to deliver a message. If the message cannot be delivered to a target, then an error is logged.
- Blocking and non-blocking enqueue - The sending process will be notified when the message is written to the target queue. A return status will indicate if the message successfully enqueued to the queue.
- Blocking and non-blocking dequeue - The sending process will be notified when the message is read from the target queue. A return status will indicate if the message successfully dequeued from the queue.
- Blocking and non-blocking Acknowledge - The sending process will be notified when the target process confirms the message. A return status will indicate if the message was successfully confirmed by the target.
- Blocking and non-blocking Recoverable - The sending process will be notified when the recovery system has accepted the message. A return status will indicate if the message was successfully journalled by the recovery system.
- Blocking and non-blocking Recoverable Acknowledge - The sending process will be notified when the target process has confirmed the recoverable message. A return status will indicate if the message was successfully confirmed by the target process.

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DECmessageQ Scripts Facility

The DECmessageQ scripts facility provides a general capability to perform message capture, simulation, and replay.

- Capture - DECmessageQ scripts can be used to capture messages sent or received from a process. These messages can be displayed on the output device or collected in a disk file. The messages are displayed in an ASCII file using the DECmessageQ scripts syntax.
- Simulation - A disk file containing DECmessageQ scripts commands can be used to simulate message traffic to a process. The commands use the DECmessageQ scripts syntax. The process will receive these messages after any DECmessageQ queue is scanned for receivable messages.
- Replay - A replay is the simulation of messages previously captured.

HARDWARE REQUIREMENTS

Processors Supported - Alpha Processors for Development and Run-time Only:

AlphaServer	300
AlphaServer	400
AlphaServer	800
AlphaServer	1000
AlphaServer	1000A
AlphaServer	2000
AlphaServer	2100
AlphaServer	4000
AlphaServer	4100
AlphaServer	8200
AlphaServer	8400
AlphaStation	200
AlphaStation	250
AlphaStation	255
AlphaStation	400
AlphaStation	500
AlphaStation	600
AlphaStation	600A
Alpha:	DEC 2000 Model 300S
	DEC 2000 Model 500
Alpha:	21066AB
	Digital AXPvme 64
	EB64+ (Aspen, NekoTek), EB66+ (Aspen, NekoTek)
	VMEAlpha64/SP

DEC 3000 Model 300,
DEC 3000 Model 300L,
DEC 3000 Model 300LX,
DEC 3000 Model 300X,
DEC 3000 Model 400,
DEC 3000 Model 400S,
DEC 3000 Model 500,
DEC 3000 Model 500S,
DEC 3000 Model 500X,
DEC 3000 Model 600,
DEC 3000 Model 600S,
DEC 3000 Model 700,
DEC 3000 Model 800,
DEC 3000 Model 800S
DEC 3000 Model 900
DEC 4000 Model 6xx Alpha Series,
DEC 4000 Model 7xx AXP Series
DEC 7000 Model 600 Alpha Series
DEC 7000 Model 700 Alpha Series
DEC 10000 Model 600 Alpha Series

For more specific Hardware information, refer to the Digital Unix Operating System Software Product Description (SPD 41.61.xx).

Processors Supported - HP-UX-Based Processors for Development and Run-time Only:

HP-PA "Precision Architecture", HP9000-7xx, HP9000-Bxx, HP9000-CXX, HP9000-DXX, HP9000-Exx, HP9000-Fxx, HP9000-Gxx, HP9000-Hxx, HP9000-Ixx, HP9000-Jxx, HP9000-Kxxx, HP9000-Txxx, HP9000-T520/1-14, HP9000-T-500/1-12, HP9000-890/100-400, HP9000-870/100-400, HP9000-EPS21, HP9000-EPS30 and HP9000-8xx Family of RISC Processors

Processors Supported - AIX-Based Processors for Development and Runtime Only:

RS6000-Mxxx, RS6000-2xx, RS6000-3xx, RS6000-4xx, RS6000-5xx, RS6000-9xx, RS6000-Cxx, RS6000-Exx, RS6000-Fxx, RS6000-Gxx, RS6000-Jxx, RS6000-Rxx, RS6000-SP Family of RISC Processors

Processors Supported - SunOS and Solaris Development and Run-Time Only:

Sun/SPARC[R] Classic, Sun/SPARC LX, Sun/SPARC 10/xx, Sun/SPARC ELC, Sun/SPARC IPC, Sun/SPARC IPX, Sun/SPARC 2xx, Sun/SPARC 3xx, Sun/SPARC 4xx, Sun/Sparcserver 5, Sun/SPARCserver 10, Sun/SPARCserver 20/71, Sun/SPARC 4, Sun/SPARC 5, Sun/SPARC 20, Sun/ULTRASPARC 140, Sun/ULTRASPARC 170, Sun/ULTRAServer 140, Sun/ULTRAServer 150, Sun/ULTRAServer 170, Sun/SPARCserver 6xxMP/xxx, Sun/SPARCserver 1000/xxx, Sun /SPARCserver 20/612, Sun/ULTRAServer 2200, Sun/ULTRAServer 3000, Sun/ULTRAServer 4000, Sun/SPARCcenter 2000, Sun/ULTRAServer 5000, Sun/ULTRAServer 6000, Sun /ULTRAServer 10000

Processors Supported - NCR Unix Development & Run-Time Only: NCR System 3000, 31xx, 32xx, 3333, 3345, 3350, 3360, 34xx, 35xx, STARserver E

Disk Space Requirements

The maximum disk space required for any DECmessageQ for UNIX Server V4.0 product is 18 MB.

The maximum disk space required for any DECmesageQ for Unix Client V4.0 product is 1.8 MB.

This value refers to the disk space required on the user file system. This size is an approximate; actual size may vary depending on the user's system environment, configuration, and software options.

SOFTWARE REQUIREMENTS

- Digital UNIX Operating System Version 3.2C or higher
- HP-UX (HP9000-7xx, -8xx) Operating System, Version 9.xx or higher
- AIX Operating System Version 3.2 or higher
- SunOS Operating System Version 4.1.x or higher
- Solaris Operating System Version 2.1 or higher
- NCR Unix Operating System Version 2.03.01 or higher

GROWTH CONSIDERATIONS

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

DISTRIBUTION MEDIA

DECmessageQ for SunOS, DECmessageQ for Solaris, DECmessageQ for AIX and DECmessagQ for NCR Unix:

- QICtape

DECmessageQ for HP-UX (HP-PA):

- 4MM DAT

DECmessageQ for Digital UNIX, DECMessageQ for HP-UX (HP9000-7xx, HP90008xx, E,F, G, H, I, K, and T series), DECmessageQ for Solaris, DECmessageQ for AIX:

- CD–ROM

ORDERING INFORMATION

Development Option

All DECmessageQ for UNIX Development Options include the base message queuing software and language compiler binding libraries.

Run-Time Only Option

All DECmessageQ for UNIX Client and Server Run-Time Only Options provide all the facilities of the development versions of DECmessageQ for UNIX except the language compiler binding libraries. The purpose of the Run-Time Only version is to support the execution of previously developed applications on a target machine. Program development is not supported under the Run-Time Only Option.

The DECmessageQ for Unix Runtime only media kits include binaries for both a Unix Runtime Server and a Unix Runtime Client, orderable under the part number. Customers can choose which Runtime only binaries (Server or Client) they wish to utilize in their DECmessageQ environment.

DECmessageQ for UNIX Software Licenses

Orderable for Specific UNIX Operating Systems:
DECmessageQ for Digital UNIX Development:
QL-2W7A*-AA

DECmessageQ for Digital UNIX Run-Time Only:
QL-2W8A*-AA

DECmessageQ for HP-UX, HP-PA Development:
(For HP9000-7xx and -8xx Platform Support)
QL-2W9A*-AA (Note: Replaces YR-DMQHX-D*)

DECmessageQ for HP-UX, HP-PA Run-Time Only:
(For HP9000-7xx and -8xx Platform Support)
QL-2WAA*-AA (Note: Replaces YR-DMQHX-R*)

DECmessageQ for AIX Development:
QL-2WBA*-AA (Note: Replaces YR-DMQAX-D*)

DECmessageQ for AIX Run-Time Only:
QL-2WCA*-AA (Note: Replaces YR-DMQAX-R*)

DECmessageQ for SunOS Development:
QL-MK9A*-AA

DECmessageQ for SunOS Run-Time Only:
QL-MKFA*-AA

DECmessageQ for Solaris Development:
QL-2WDA*-AA

DECmessageQ for Solaris Run-Time Only:
QL-2WEA*-AA

DECmessageQ for NCR Unic Development:
QL-56TA*-AA

DECmessageQ for NCR Unix Run-Time Only:
QL-56UA*-AA

DECmessageQ for UNIX Software Media

Orderable for Specific UNIX Operating Systems:

DECmessageQ for Digital UNIX Development:
QA-2W7AA-H*

DECmessageQ for Digital UNIX Run-Time Only:
QA-2W8AA-H*

DECmessageQ for HP-UX, HP-PA Development:
(For HP9000-7xx and -8xx Platform Support)
QA-2W9AA-H* (Note: Replaces YR-DMQHX-DP)

DECmessageQ for HP-UX, HP-PA Run-Time Only:
(For HP9000-7xx and -8xx Platform Support)
QA-2WAAA-H* (Note: Replaces YR-DMQHX-RP)

DECmessageQ for AIX Development:
QA-2WBAA-H* (Note: Replaces YR-DMQAX-DP)

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DECmessageQ for AIX Run-Time Only:
QA-2WCAA-H* (Note: Replaces YR-DMQAX-RP)

DECmessageQ for SunOS Development:
QA-MK9AA-H*

DECmessageQ for SunOS Run-Time Only:
QA-MKFAA-H*

DECmessageQ for Solaris Development:
QA-2WDAA-H*

DECmessageQ for Solaris Run-Time Only:
QA-2WEAA-H*

DECmessageQ for NCR Unix Development:
QA-56TAA-H*

DECmessageQ for NCR Unix Run-Time Only:
QA-56UAA-H*

DECmessageQ for UNIX Software Documentation

Order the Same Documentation Kit for all UNIX Products:

DECmessageQ for UNIX Systems: QA-MKCAA-GZ

DECmessageQ for UNIX Software Product Services

Orderable for Specific UNIX Operating Systems:

DECmessageQ for Digital UNIX Development:
QT-2W7A*-**

DECmessageQ for Digital UNIX Run-Time Only:
QT-2W8A*-**

DECmessageQ for HP-UX Development:
(For HP9000-7xx and -8xx Platform Support)
QT-2W9A*-**

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DECmessageQ for HP-UX Run-Time Only:
(For HP9000-7xx and -8xx Platform Support)
QT-2WAA*-**

DECmessageQ for AIX Development:
QT-2WBA*-**

DECmessageQ for AIX Run-Time Only:
QT-2WCA*-**

DECmessageQ for SunOS Development:
QT-MK9A*-**

DECmessageQ for SunOS Run-Time Only:
QT-MKFA*-**

DECmessageQ for Solaris Development:
QT-2WDA*-**

DECmessageQ for Solaris Run-Time Only:
QT-2WEA*-**

DECmessageQ for NCR Unix Development:
QT-56TA*-**

DECmessageQ for NCR Unix Run-Time Only:
QT-56UA*-**

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

SOFTWARE LICENSING

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

License Management Facility Support

The Digital UNIX and ULTRIX layered products support the Digital UNIX and ULTRIX License Management Facilities.

License units for these products are allocated on an Unlimited System Use basis.

For more information on the License Management Facility, refer to the Software Product Descriptions for the ULTRIX Operating System (SPD 26.40.xx), the Digital UNIX Operating System (SPD 41.87.xx), or the appropriate Operating System documentation.

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, 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.

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