digital™

Software Product Description

PRODUCT NAME: DEComni MMS Version 3.1 **SPD 47.89.05**

DESCRIPTION

DEComni MMS is a network communication product that provides a solution for the connection and management of manufacturing/utility control devices and systems. DEComni MMS implements the Manufacturing Message Specification (MMS), ISO/IEC 9506-1 and ISO /IEC 9506-2. When combined with prerequisite hardware and software, DEComni MMS interoperates with other systems supporting the Manufacturing Message Specification ISO/IEC9506-1 and ISO/IEC 9506-2 specifications.

Features

DEComni MMS is an implementation of the Manufacturing Message Specification (MMS), ISO/IEC 9506. It relies upon the DEComni API product that provides a high level applications programming interface (API) with a high degree of functionality built in. The interface is easy to use and requires very little support code. For more information, please refer to the DEComni API Software Product Description (SPD 47.88.xx).

Alternatively, DEComni MMS can be integrated with the BASEstar Open Server product (SPD 47.87.xx) for connection to plant devices which use the MMS protocol.

DEComni MMS provides, as a minimal set, the Client Conformance requirements for the services specified in MAP Implementation Class MAP3.

The product is able to connect to those devices that have implemented to ISO/IEC 9506 (MMS).

CONFORMANCE TO STANDARDS

The conformance of DEComni MMS software to OSI standards is specified in Appendix A of this SPD.

INSTALLATION

Only experienced customers should install DEComni MMS software. DIGITAL recommends that all other customers purchase DIGITAL Installation Services. These services provide for installation of the software product by an experienced DIGITAL software specialist.

Installation steps for DEComni MMS consists of the following:

- Verification that all components of DEComni MMS have been received
- Verification that the necessary versions of the prerequisite software and documentation are available
- Verification of the appropriate system parameters
- Verification that the system meets the minimum hardware and software requirements as specified in this SPD
- Installation of the DEComni MMS software by creating the necessary directories and by copying the software from the distribution media
- Verification that DEComni MMS has been installed correctly by using the IVP

DEComni MMS Installation Verification Procedure (IVP)

The DEComni MMS IVP performs a series of tests to verify proper installation.

HARDWARE REQUIREMENTS

Alpha Processors Supported

All Alpha processors supported by the DEComni API and BASEstar Open Server products.

Disk Space Requirements (Block Cluster Size = 1):

For OpenVMS Systems

During Installation	Permanent Use
20,000 blocks	10,000 blocks

For DIGITAL UNIX Systems

Component	Installation	Permanent Use
File System Root	340 Kbytes	340 Kbytes
/usr/opt	7 Mbytes	6 Mbytes
/usr/var/opt	5 Mbytes	2 Kbytes
Total	13 Mbytes	9 Mbytes

SUPPORTED PRODUCTS

This SPD defines the following DEComni MMS products:

- DEComni MMS for DIGITAL UNIX Version 3.1
- DEComni MMS for OpenVMS Alpha Version 3.1

SOFTWARE REQUIREMENTS

For OpenVMS Systems:

- Either:
  - — OpenVMS Alpha Operating System V6.1, V6.2, V7.0, V7.1, or
  - — OpenVMS VAX Operating System V6.1, V6.2, V7.0, V7.1
- DECnet/OSI for OpenVMS V6.3 to V7.1
- DEComni API for OpenVMS Version 3.1

For DIGITAL UNIX Systems:

- DIGITAL UNIX Operating System V3.2 or V4.0
- DECnet/OSI for DIGITAL UNIX V3.2 or V4.0
- DEComni API for DIGITAL UNIX Version 3.1

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

This product is distributed with the DIGITAL CD-ROM software libraries for OpenVMS Alpha and for DIGITAL UNIX.

ORDERING INFORMATION

For OpenVMS Alpha systems:

Software Licenses: QL-2QD**-**
Documentation Kit: QA-2QDAA-GZ
Software Product Services: QT-2QD**-**

For OpenVMS VAX systems:

Software Licenses: QL-4VAA*-**
Documentation Kit: QA-2QDAA-GZ
Software Product Services: QT-4VA**-**

For DIGITAL UNIX systems:

Software Licenses: QL-2YU**-**
Documentation Kit: QA-2YUAA-GZ
Software Product Services: QT-2YU**-**

* 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.

SOFTWARE LICENSING

The DEComni MMS license gives the user the right to use the software on a single CPU and includes the delivery of a license product Authorization Key (PAK) to enable DEComni MMS software. This software is furnished under the licensing provisions of Digital Equipment Corporation's Standard Terms and Conditions for software licenses. For more information about DIGITAL licensing terms and policies, contact your local DIGITAL office.

License Management Facility Support

This layered product supports the OpenVMS and DIGITAL UNIX License Management Facility. For more information on the License Management Facility, refer to the appropriate operating system SPD or documentation.

SOFTWARE PRODUCT SERVICES

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

SOFTWARE WARRANTY

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

Warranty Limitations

DIGITAL has produced this product according to Protocol Specifications produced by the International Organization for Standardization (ISO) defined in Appendix A of this SPD.

DIGITAL warrants this product to conform to these Protocol specifications, as described by these International Standards.

DIGITAL cannot assume responsibility for problems caused by:

- Other vendors' nonconformance to the International Standards that DEComni API implements
- Ambiguities in the International Standards implemented by DEComni MMS
- Flaws in the protocol design appearing in the International Standards implemented by DEComni MMS

Assistance requested of DIGITAL for problems resulting from any of the errors listed above will result in all associated service calls being billed at the prevailing per call rates. To minimize the risk of problems, DIGITAL has tested this product against selected other ISO/IEC 9506-1 and ISO/IEC 9506-2 implementations.

APPENDIX A: Conformance to Standards

This appendix defines the conformance of DEComni MMS DEComni MMS product to International Organization for Standardization (ISO) international specifications for protocol standards as specified in ISO/IEC 9506-2 clause 18.

Table 1
PICS Part 1: Implementation Information

Attribute	Value
Implementation's Vendor Name	DIGITAL
Implementation's Model Name	DEComni MMS
Implementation's Revision Identifier	V3.0
Machine Name(s) and Version Number(s)	-
Operating System(s)	OpenVMS, DIGITAL UNIX
MMS Abstract Syntax	[1 0 9506 2 1]
MMS Version Number Supported	1
MMS Companion Standard Abstract Syntaxes	None
MMS Companion Standard Version Number Supported	N/A
Calling MMS-user (indicate "Yes" or "No")	Yes
Called MMS-user (indicate "Yes" or "No")	Yes
List of Standardized Names	None

Table 2
PICS Part 2: Service CBBs

Service Conformance Building Blocks	S(erver), C(lient), or B(oth)
Initiate	B
Conclude	B
Cancel	-
UnsolicitedStatus	B
Status	B
GetNameList	B
Identify	B
Rename	-
GetCapabilityList	B
Read	B
Write	B

Table 2 (Cont.)
PICS Part 2: Service CBBs

Service Conformance Building Blocks	S(erver), C(lient), or B(oth)
InformationReport	B
GetVariableAccessAttributes	B
DefineNamedVariable	-
DefineScatteredAccess	-
GetScatteredAccessAttributes	-
DeleteVariableAccess	-
DefineNamedVariableList	B
GetNamedVariableListAttributes	B
DeleteNamedVariableList	B
DefineNamedType	-
GetNamedTypeAttributes	-
DeleteNamedType	-
Input	-
Output	-
TakeControl	-
RelinquishControl	-
DefineSemaphore	-
DeleteSemaphore	-
ReportSemaphoreStatus	-
ReportPoolSemaphoreStatus	-
ReportSemaphoreEntryStatus	-
AttachToSemaphore	-
InitiateDownloadSequence	C
DownloadSegment	S
TerminateDownloadSequence	S
InitiateUploadSequence	C
UploadSegment	C
TerminateUploadSequence	C
RequestDomainDownload	S
RequestDomainUpload	S
LoadDomainContent	B
StoreDomainContent	B
DeleteDomain	B
GetDomainAttributes	B
CreateProgramInvocation	B
DeleteProgramInvocation	B
Start	B
Stop	B
Resume	B
Reset	B
Kill	B
GetProgramInvocationAttributes	B
ObtainFile	B
DefineEventCondition	-
DeleteEventCondition	-
GetEventConditionAttributes	-
ReportEventConditionStatus	-
AlterEventConditionMonitoring	-
TriggerEvent	-
DefineEventAction	-
DeleteEventAction	-
GetEventActionAttributes	-
ReportEventActionStatus	-
DefineEventEnrollment	B (See Note 9)
DeleteEventEnrollment	B (See Note 9)
AlterEventEnrollment	-
ReportEventEnrollmentStatus	-
GetEventEnrollmentAttributes	B (See Note 9)
AcknowledgeEventNotification	-
AttachToEventCondition	-
EventNotification	B
GetAlarmSummary	-
GetAlarmEnrollmentSummary	-
ReadJournal	-
WriteJournal	-
InitializeJournal	-
CreateJournal	-
DeleteJournal	-
ReportJournalStatus	-

Table 3
PICS Part 3: Parameter CBB

Parameter Conformance Building Blocks	Supported (Value)
STR1	Y
STR2	Y
NEST (>=0 . Give integer value.)	10
VNAM	Y
VADR	Y
VALT	Y
VSCA	N
TPY	N
VLIS	NY
REAL	N
CEI	N

Table 4
Supplemental PICS Table

Service Conformance Building Blocks	S(erver), C(lient), or B(oth)
FileOpen	B
FileRead	B
FileClose	B
FileRename	B
FileDelete	B
FileDirectory	C

Table 5
PICS Part 4: Local Implementation Values

Attribute	Value
Range of values for floating point numbers	See Note 1
Supported values of the floating point exponent width	See Note 1
Supported values of the floating point format width	See Note 1
Range of values for signed integer	12**32-1
Range of values for unsigned integer	2**32
The following semantics are defined for the use of the local detail calling/called fields. As a result, a limit is set for a maximum MMS PDU size which limits specific functions.	
Maximum length for BIT STRING in bits	See Note 2
Maximum length for OCTET STRING in octets	See Note 2
Address formats for VADR Parameter CBB	N/A
Maximum Input Time Out in seconds	N/A
Level of support for time	See Note 3
Granularity of time in milliseconds	N/A
Uninterruptible access to variable	See Note 4
Priority processing for semaphores	N/A
Capabilities of VMD	N/A
Local Detail	N/A
File Name Syntax	See Note 5
Range of Maximum Services Outstanding Calling	See Note 6
Range of Maximum Services Outstanding Called	See Note 6
Execution Argument	N/A
Additional Code in Error Type	See Note 7
Additional Detail in Error Type	See Note 7
Method for Extended Derivation of Status Information	N/A
Local Detail Calling/Called	See Note 8
Load Data Format	N/A
Maximum Number of Upload State Machines	N/A

Note 1:

VAX F floating point is supported. The range is 1.17545*10**-38 through 1.17545*10**38. An exponent width of 8 bits is supported. A format width of 32 bits is supported.

Note 2:

The effective length for strings is limited by the maximum PDU size. See Note 8.

Note 3:

Date and Time are supported. Support for Time Sequence Identifier is N/A.

Note 4:

Read and Write indications are delivered to user written code and thus uninterruptible access is application dependent.

Note 5:

The syntax and semantics for file name are specified by the OpenVMS operating system. This is documented in the OpenVMS documentation under "Full File Specification". Wildcard specifiers are not permitted.

The file name must be specified in the first graphic string of the FileName production. Any information in additional graphic strings will be ignored.

Note 6:

The range is 1-infinity. Acceptance of indications is under programming control. The actual number of outstanding requests allowable is dependent upon process memory limits which is set by either the programmer or system manager.

Note 7:

This implementation does not specify additional code nor additional detail in error type.

Note 8:

The following semantics are defined for the use of the local detail calling/called fields. As a result, a limit is set for a maximum MMS PDU size, which limits specific functions.

The semantics of this field are contained in the implementation agreements of the NIST (National Institute for Standards and Technology - OSE Implementor's Workshop) Special Publication 500-214 titled *Stable Implementation Agreements for Open Systems Interconnection Protocols*, Version 7, Edition 1, December 1993, Part 20 (MMS) Sections 8.2.0.3 and 8.2.0.4.

Note 9:

The optional parameter of Event Actions on an Event Enrollment is not supported.