



# Software Product Description

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**PRODUCT: Compaq TeMIP Access Module for Nortel DMS MSC/HLR**

**SPD 80.23.01**

## DESCRIPTION

The Compaq TeMIP Nortel DMS MSC/HLR Access Module (AM) provides an interface to the Nortel DMS MSC/HLR. This Access Module supports fault management capabilities, receiving and processing unsolicited messages (Fault Management).

TeMIP for Tru64 UNIX® is a family of software products for the management of telecommunications and corporate networks, including fixed wire and mobile/cellular voice and data, multi-vendor, multi-technology networks. TeMIP V4.0 provides comprehensive off-the-shelf fault and trouble management functions such as Alarm Handling, Event Logging and Trouble Ticketing for telecommunications network management.

TeMIP supports the International Standards Organization (ISO) management standards ISO 10164-x and ISO 10165-x, the OMNIpoint 1 standards as defined by NMF and T1M1. TeMIP and its features are applicable in the context of the International Telecommunication Union-Telecom Standard Sector (ITU-T) X.73x and Telecommunications Management Network (TMN) M.3010 and M.3100 Recommendations.

TeMIP gives network operators a global view of their networks, and enables them to activate management functions and operations from single or multiple workstations.

TeMIP is built on top of the TeMIP Framework and fully benefits from the object oriented and truly distributed software architecture.

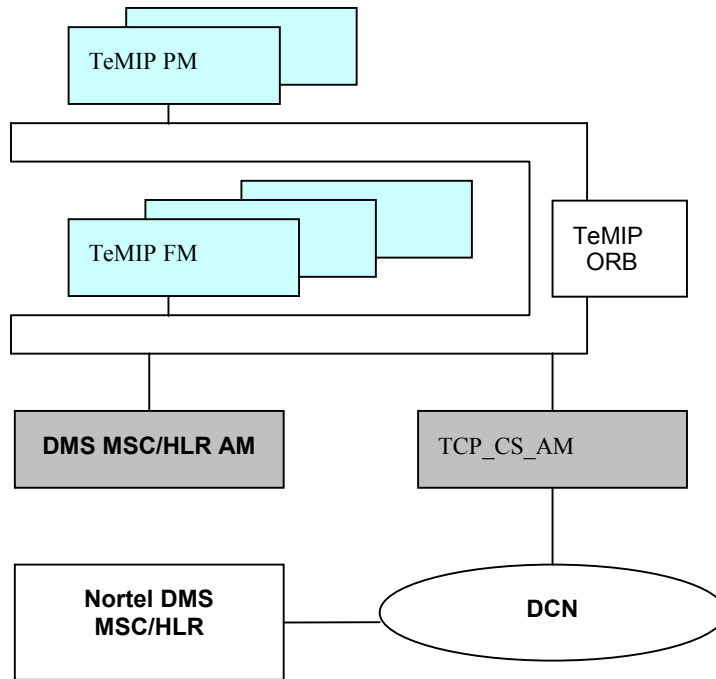
## Solution Components

The Nortel DMS MSC/HLR equipment is directly interfaced to TeMIP by means of a combination of Management Modules:

- The TCP Communications Server Access Module, responsible for establishing and maintaining the physical connection to the equipment. (As an alternative to the TCP Communications Server, either the X.25 (SVC), RS232 or Telnet Communications Servers could also be envisioned),
- The DMS MSC/HLR AM, responsible for the Information Model representing the management capabilities of the equipment as well as all associated semantic translations between its ASCII-based messaging interface and TeMIP data models.

The solution components are shown in Figure 1.

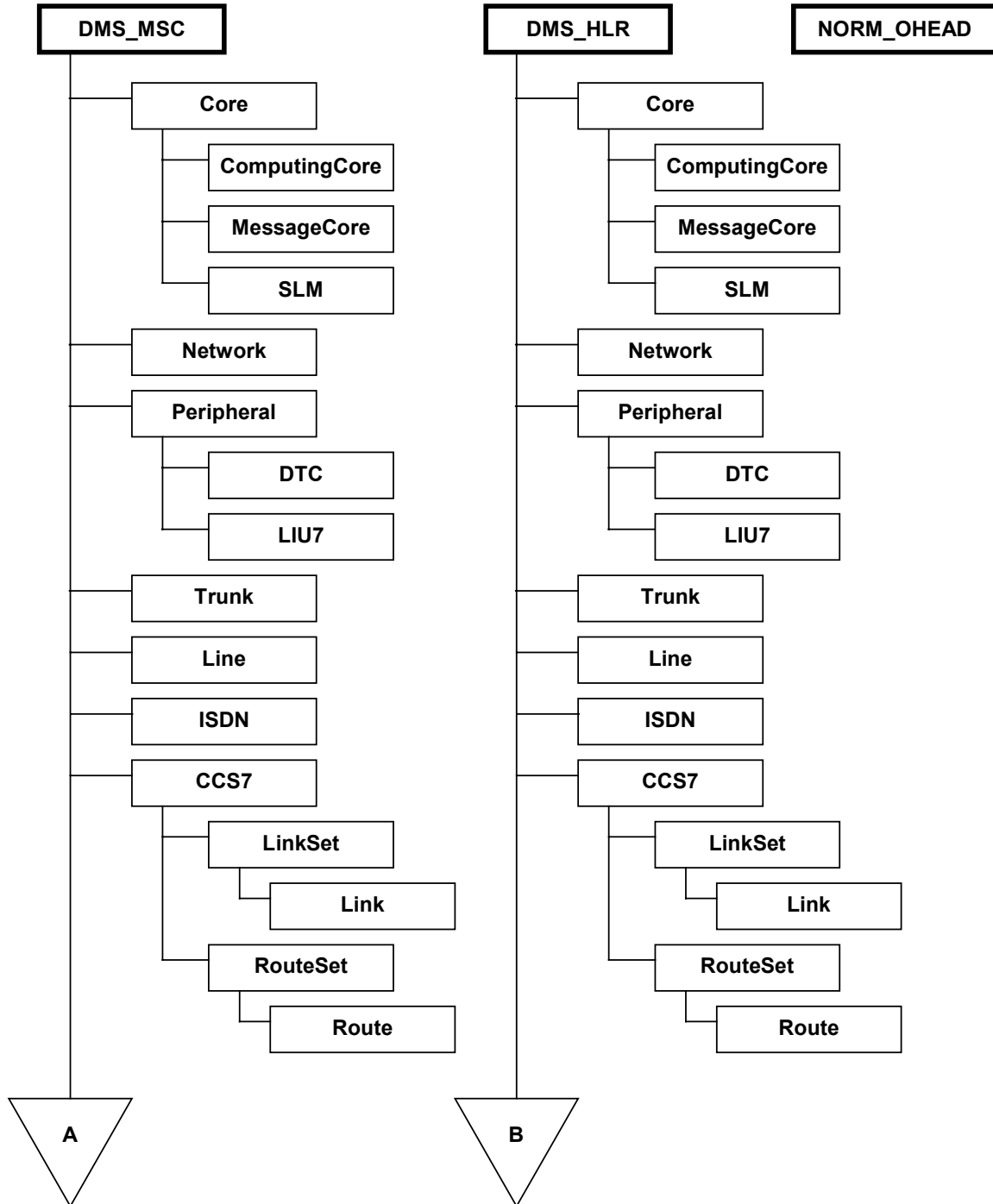
Figure 1: Solution Components

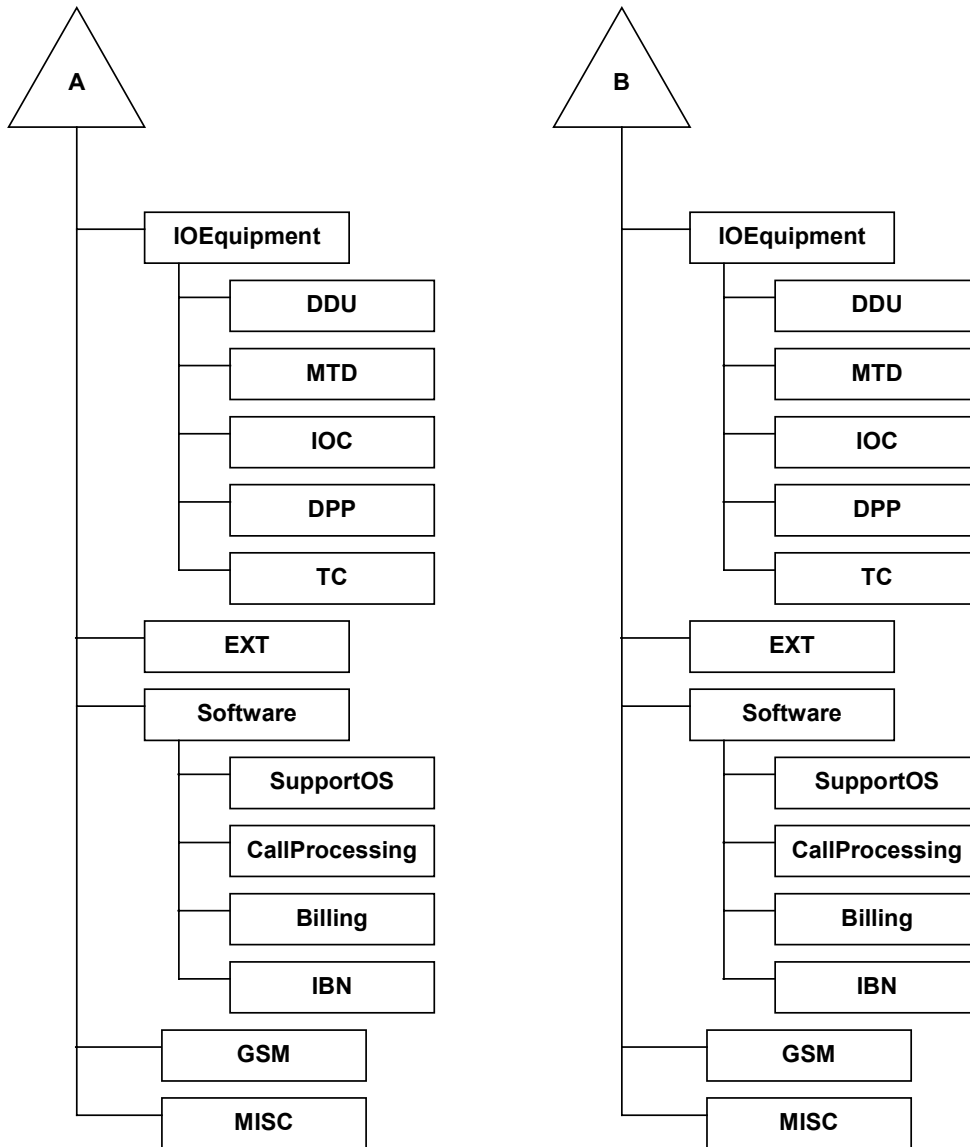


**Information Model Outline**

The Nortel DMS MSC/HLR is represented by the information Model shown in Figure 2.

**Figure 2: Information Model**





The meaning of each class is described in Table 1.

**Table 1: Nortel DMS MSC/HLR Hierarchy Description**

Global Class	Child Class	Child class	Description	Cardinality
DMS_MSC (DMS_MSC and DMS_HLR child classes are strictly the same)			<p>The Nortel DMS_MSC switch is the DMS Mobile-services Switching Center. The DMS_MSC switch is used in the Network and Switching Subsystem (NSS) of a Global System for Mobile Communications (GSM) Public Land Mobile Network (PLMN).</p> <p>A list of the major functions of the DMS_MSC follows:</p> <ul style="list-style-type: none"> <li>• Mobile call handling</li> <li>• Supplementary Services</li> <li>• Gateway MSC functions</li> </ul>	N
DMS_HLR			<p>The DMS-Home Location Register (HLR) provides a central database of Mobile Subscriber information in a GSM Public Land Mobile Network. Every Mobile Subscriber is associated with a DMS_HLR, which is the master repository of all Mobile Subscriber permanent data.</p> <p>The following functions are carried out by the DMS_HLR:</p> <ul style="list-style-type: none"> <li>• Application Context Negotiation Support</li> <li>• Call routing support</li> <li>• Equal Access support</li> <li>• Intelligent Network support</li> <li>• Inter-PLMN roaming support</li> <li>• Supplementary Services support</li> <li>• DMS_HLR interfaces.</li> </ul>	N
	CORE		<p>The Core sub-component represents the DMS-SuperNode of a DMS switch. This comprises the following two hardware elements:</p> <ul style="list-style-type: none"> <li>• DMS-Core</li> <li>• DMS-Bus.</li> </ul> <p>The DMS-Core consists of a Computing Module (CM) and a Software Load Module (SLM). It is responsible for system management, system sanity, maintenance, call processing, program load, download and execution, and message communication with other parts of the switch.</p> <p>The DMS-Bus provides fast communication between the CM and the peripheral modules</p>	N
		COMPUTIN GCORE	<p>The ComputingCore is the central controller of a DMS switch and provides system management, system sanity, maintenance and call processing functions.</p>	N

Global Class	Child Class	Child class	Description	Cardinality
		MESSAGECORE	All of the equipment in a DMS switch uses an internal message bus (DMS-Bus) to communicate. The MessageCore sub-component encapsulates this message switching functionality.	N
		SLM	The SLM is responsible for loading and unloading applications into the memory module of the DMS.	N
	NETWORK		<p>The Network sub-component represents the actual cross-connection functionality (switching) in the DMS switch. It consists of a processing complex and a switching complex.</p> <p>The processing complex exchanges messages with Peripheral and Core. The messages from Core to processing complex can be in the form of commands to locate appropriate paths through the switching complex, to establish or release cross-connections or to send a maintenance code.</p> <p>The switching complex provides the actual cross-connection and interface to the PMs.</p>	N
	PERIPHERAL		<p>The Peripheral sub-component represents the devices that allow the DMS switch to communicate with the outside world.</p> <p>The following devices are included:</p> <ul style="list-style-type: none"> <li>• Digital Trunk Controller. (DTC)</li> <li>• Link Interface Module. (LIM)</li> </ul>	N
		DTC	The DTC (Digital Trunk Controller) sub-component captures functionality of Digital Trunk Controller equipment.	N
		LIU7	The LIU7 sub-component provides functionality of the Line Interface Unit for a CCS7 signalling link. The LIU7 cards are located in the Link Peripheral Processor (LPP) equipment, which consists of Link Interface Modules (LIM).	N
	TRUNK		The Trunk sub-component represents various types of trunk module equipment. Trunk module equipment terminates analog circuits on DMS switches. A trunk module encodes and multiplexes incoming speech from a maximum of 30 analog trunks into digital format. It also decodes and demultiplexes the 30 digital speech channels into 30 analog trunks for transmission to analog equipment.	N
	LINE		The DMS switches support various types of Line Cards. This subclass captures faults and events generated by the Line Cards.	N
	ISDN		The DMS switches support Integrated Services Digital Network (ISDN) Line cards. This sub-component is used for capturing faults generated by ISDN Log subsystems.	N

Global Class	Child Class	Child class	Description	Cardinality
	CCS7		The Common Channel Signalling Protocol Number 7 (CCS7) is used by the signalling network to transmit telephony messages that relate to call set-up, call control and management control. The CCS sub-component represents faults and events that are generated by CCS7.	N
		LINKSET	The LinkSet sub-component represents CCS7 LinkSets, consisting of one or more links. The Link is the sub-component of the LinkSet.	N
		ROUTESET	The RouteSet sub-component represents CCS7 RouteSets, consisting of one or more routes. The Route is the sub-component of the RouteSet.	N
	IOEQUIPMENT		Input/Output equipment normally contain Disk Drive Units (DDU), I/O controllers, Magnetic Tape Drives (MTD), consoles and printers. These devices allow a user to communicate with the DMS switch and take actions such as entering machine controls, running tests, requesting information and receiving system-generated messages. The IOD sub-component represents faults and events that are generated by the I/O devices.	N
		DDU	The DDU sub-component is made up of Disk Drive Units.	N
		IOC	The IOC sub-component provides the main processing functionality to manage all I/O Equipment.	N
		MTD	The MTD sub-component is used for Magnetic Tape Drive units.	N
		DPP	The DPP sub-component is used for Data Peripheral Processors. They maintain the terminal information and audit interval.	N
		TC	The TC sub-component is used for all types of interface terminals.	N
	EXT		The External subsystem (EXT) monitors the alarm circuits of any equipment outside the DMS switches. The EXT sub-component represents faults and events generated by external equipment such as fire, door open.	N
	SOFTWARE		The Software sub-component captures functionality provided by software applications, which can be dynamically downloaded to the memory.	N
		SUPPORTOS	The SupportOS sub-component represents the operating system support functionality.	N
		CALLPROCESSING	The CallProcessing sub-component used for encapsulating the functionality of the Call Processing application.	N
		BILLING	The Billing sub-component provides the functionality to capture faults and events generated by the Billing application.	N
		IBN	The IBN subclass captures the functionality of the Integrated Business Network.	N

Global Class	Child Class	Child class	Description	Cardinality
	GSM		The GSM subclass represents specifically the operations of DMS_MSC and DMS_HLR within a Global System for Mobile Communications Public Land Mobile Network. All other information related to the general operation, performance, and maintenance of a switch is included in the rest of classes.	N
	MISC		The MISC sub-component contains miscellaneous functionality that is not covered by any of above sub-components.	N
NORM_OHEAD			Entities of this global class are responsible for signalling received messages that are not assigned to an entity representing a NE.	N

## MANAGEMENT CAPABILITIES SUMMARY

### Unsolicited Messages Support

The Nortel DMS MSC/HLR AM handles unsolicited messages.

Table 2 indicates the message-types and sub-types that can be handled by the AM. Messages are handled either by default mapping rules, according to the message-type, or by specific mapping and parsing rules determined by the message sub-type.

For a given message type, all sub-types that are not explicitly listed in Table 2 are processed according to the same default rules.

### Commands Support

The Nortel DMS MSC/HLR AM provides no specific commands support.

### Alarm Clearance

Two schemes of CLEAR alarms processing are explained hereafter.

Some alarm messages have a corresponding alarm clear message. The DMS MSC/HLR switch provides a specific alarm identifier to allow the correlation of the alarm with its clear message. So, alarm clearing is performed based on certain fields in the message, according to ITU-T standards:

- The alarm has severity clear; and the Managed Object, Event Type, Probable Cause and Specific Problem fields are the same as a previous alarm.

This is used to correlate the alarms on a default entity when the specific entity is not provisioned.

According to ITU-T standards, the clearance of an alarm can be done based on the following rule:

- The alarm has severity clear; the Managed Object is the same as the previous alarm; and the Notification Identifier field is the same as the Notification Identifier of the previous alarm.

In order to clear a previous alarm, the DMS MSC/HLR sends a specific message with the same alarm number in the message body. The DMS MSC/HLR AM generates a Notification Identifier in every alarm message, and also in the clear alarm, so the TeMIP Alarm Handling can perform the clear correlation whenever required.

This method is used to correlate the OSI alarms with the same Notification Identifier.

This AM uses both these mechanisms for alarm clearance.

### Miscellaneous Management capabilities

The DMS MSC/HLR AM shall implement the feature below:

- Automatic detection and reporting of communication failure (Heartbeat).



Table 2: DMS MSC/HLR Supported Messages

Message Types	Sub-Types
ACD---	110, 121, 130
ACMS---	100, 101, 102, 103, 104, 105
ACNS---	
ACT---	100, 101, 102
AFT---	001, 002, 003
AIN---	300, 301, 302, 303, 500, 501, 510, 511, 610, 611, 612
ALRM---	109, 111, 112
ALT---	100, 101, 103, 104, 105, 106, 107, 108, 109, 110, 111, 200, 207, 208, 209, 300, 306, 307, 308, 309
AMA---	100, 112, 114, 117, 118
AMAB---	100, 101, 102, 103, 104, 105, 106, 108, 109, 110, 111, 115, 118, 119, 122, 150, 151, 153, 154, 155, 160, 161, 180, 181, 182, 183, 184, 185, 186, 187, 189, 200
AOSS---	100, 101, 102, 103, 105, 107, 108
AP---	310, 311, 312, 313, 314, 315, 316, 318, 319, 320, 321, 322, 323, 324, 401, 450, 451, 501, 502, 503, 504, 800
APS---	100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112
ATB---	100
ATME---	200, 201, 202, 203, 204, 205, 206, 207, 208
ATT---	100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124
AUD---	101, 102, 103, 104, 105, 106, 107, 108, 120, 395, 396, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 416, 417, 418, 419, 420, 422, 424, 425, 426, 427, 428, 429, 430, 432, 433, 434, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 515, 517, 518, 523, 545, 549, 550, 551, 553, 554, 559, 577, 578, 579, 580, 582, 584, 585, 587, 590, 591, 595, 596, 597, 602, 605, 606, 607, 609, 611, 614, 615, 618, 623, 628, 629, 642, 650, 651, 652
AUDT---	100, 101, 102, 103, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 126, 127, 128, 129, 130, 131, 150, 151, 152, 153, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 173, 174, 175, 176, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 191, 192, 193, 194, 195, 196, 197, 198, 199, 201, 202, 203, 204, 205, 206, 207, 208, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 225, 226, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 267, 270, 394, 396, 397, 400, 401, 404, 600, 601, 602, 603, 605, 608, 609, 610, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 630, 640, 680, 804
AV---	
AVNW---	
BEAT100	
BERT---	100, 101
BMS---	100
BOOT---	101
C6TU---	107, 108, 109
C7TD---	102, 103
C7TU---	101, 102, 103, 104, 105, 106, 107, 201, 202, 301, 302, 303
C7UP---	100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 123, 127, 128, 130, 300, 301, 405, 406, 805, 806
CC---	100, 101, 102, 103, 104, 105, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 125, 126, 127, 128, 129, 130, 131, 132, 134, 136, 200
CCI---	100
CCIS---	100, 101, 102, 103, 104, 105, 108, 109, 110, 111, 120, 121, 122, 123, 124, 130, 131, 132, 133, 300, 301, 320, 321

Message Types	Sub-Types
CCS---	101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 120, 121, 124, 125, 143, 145, 146, 147, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 186, 189, 190, 191, 192, 193, 195, 196, 197, 198, 199, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 245, 246, 248, 249, 250, 251, 252, 253, 296, 299, 400, 500, 501, 502, 503, 504, 505, 601, 701, 703, 750, 751, 889, 891, 892, 895, 896, 897, 900, 901
CDC---	101, 102
CDIV---	
CEDB---	600
CFW---	100, 101, 103, 104, 105, 106, 107
CLIV---	
CM---	100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 132, 133, 134, 135, 136, 137, 138, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 178, 179, 180, 181
CMC---	100, 101, 102, 105, 107, 110, 111, 112, 113
CMSM---	101, 102, 103, 104
COMM---	777
CP---	100, 101, 103
CPM---	
CRDB---	600
CRMG---	
CSC---	
DAS---	
DCA---	301, 302, 303
DCH---	100, 101, 102, 103, 104, 105, 500, 600
DCI---	100, 104, 303, 307, 505
DCP---	104, 105, 106, 107, 307, 806
DCR---	100, 101, 102, 103, 104, 105, 106, 107
DDIS---	100
DDM---	101, 102, 106, 107, 109, 110
DDT---	
DDU---	100, 101, 201, 202, 203, 204, 205, 208, 209, 210, 211, 212, 213, 214
DEV---	000, 001, 002, 003, 004, 200, 201, 202
DFIL---	100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 140, 141, 143, 144, 146, 147, 149, 150, 151, 152, 153, 154, 155, 156, 300, 301, 305, 307, 308, 309, 600, 602, 605
DIRP---	101
DISK---	100, 101, 102, 103, 301, 302, 303, 304, 305, 600, 601
DLC---	100, 101, 102, 103
DNC---	
DNPC---	
DPAC---	100, 101, 102, 103, 104, 105
DPNS---	
DPP---	100, 101, 102
DRM---	300, 301
DRT---	
DTSR---	100, 101, 102
DVI---	100, 101
E911---	200, 201, 202, 203, 204, 205, 206, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 223, 224, 227, 228
EAD---	100, 101, 102, 103, 104, 107, 108
EATS---	100
ECO---	
ECTS---	100, 101, 103, 105
EIN---	301, 305, 310
ENCP---	100, 101, 102, 103, 104, 105, 131, 132, 133, 143, 150
ENDB---	

Message Types	Sub-Types
ENET---	100, 102, 103, 104, 105, 106, 107, 108, 111, 112, 114, 120, 200, 203, 204, 205, 208, 211, 220, 221, 222, 223, 230, 300, 301, 302, 303, 304, 305, 308, 309, 311, 312, 313, 314, 315, 400, 401, 403, 404, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 512, 520, 522, 600, 601, 602, 603
EQAC---	100
ESA---	101, 102, 103, 104, 105, 106, 107, 108, 109, 110
ESG---	
ESR---	
ESYN---	100, 101
EXT---	100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110
FCO---	101
FM---	100, 101
FMT---	100, 101, 102, 103
FP---	300, 301, 304, 351, 354, 503, 504, 505, 552, 601
FPRT---	100, 102, 103, 104, 105, 106
FRB---	
FREQ_NT---	
FRS---	101, 181, 301
FTAM---	300, 301, 601, 701
FTR---	138
FTS---	
FTU---	102, 103, 104, 501, 502, 601, 602
GBSS---	300
GCDR---	600
GHLR---	300, 301, 302, 303, 304, 305, 306, 307, 400, 401, 500, 510, 511, 512, 600, 601, 602, 603, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 630, 645, 646, 647, 650, 651, 652, 653, 660, 661, 662, 663, 664, 665, 667, 668, 669, 670, 672, 680, 681, 682, 683, 684, 685, 686, 700, 701, 702, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 900, 911
GHOT---	600
GIN---	300, 301, 600
GINP---	900
GIWF---	300, 301, 600, 601, 602, 620, 630, 631
GMCT---	600, 601
GMON --	601
GMSC---	300, 301, 302, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 616, 617, 618, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 900, 901, 902
GVLN---	300, 600, 601, 602, 603, 604, 605, 606, 607
HEAP---	102
HSI---	501
IBM---	
IBN---	101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 113, 115, 116, 117, 118, 119, 120, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132
ICMO---	101, 102
ICTS---	100, 101, 102, 103, 105, 106, 107
IDPL---	800, 801
IMGR---	100,
INIT---	
INTL---	104
INTP---	
IOAU---	101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113
IOD---	101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 315, 600, 610
IOGA---	101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116
ISA---	100
ISDN---	100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 119, 200, 201, 202, 203
ISP---	101, 102, 103, 104, 105, 106, 107, 108, 110, 113, 114
IST---	
ISUP---	

Message Types	Sub-Types
ITN---	201, 202, 203, 204, 205, 206, 207, 208, 299, 300, 301, 302, 303, 304, 305, 306, 310, 311, 312, 313, 315, 399
ITOC---	100, 101
ITOP---	106
KTRK---	100
LAQ---	
LINE---	100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 115, 117, 118, 119, 125, 126, 127, 128, 130, 131, 132, 133, 134, 135, 138, 139, 145, 146, 147, 148, 149, 150, 151, 160, 161, 204, 205, 209, 300, 301, 410, 600, 601, 602, 603, 605
LLC---	100, 101
LMAN---	100
LMSC---	600
LMSP---	600
LNP---	300, 301, 302, 303
LOGD---	301
LOST---	101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115
MCT---	103
MDN---	100
MFC---	100, 110, 111
MIS---	100, 110
MISC---	000
MISM---	
MM---	100, 101, 110, 111, 112, 113
MOD---	100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 160
MPC---	101, 102, 103, 104, 105, 106, 201, 299, 901, 902, 903, 904, 905, 906, 907, 908
MPCS---	
MPX---	
MS---	100, 101, 102, 103, 104, 105, 150, 151, 152, 153, 154, 155, 156, 157, 208, 238, 248, 260, 261, 262, 263, 264, 265, 266, 267, 277, 280, 281, 282, 283, 284, 285, 286, 287, 300, 301, 302, 303, 304, 305, 306, 307, 310, 311, 312, 313, 314, 315, 316, 317, 320, 321, 322, 323, 324, 325, 326, 400, 401, 402, 403, 404, 405, 406, 407, 413, 414, 415
MSC---	200, 900, 910, 920
MSL---	300 CK, 301 CK
MSRT---	100, 101
MTCB---	100, 101, 102, 103, 104, 106, 107, 109, 110, 111,
MTD---	101, 102, 103
MTR---	116, 118, 123
MTS---	101, 102, 103
N6---	100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 400, 401, 402, 403, 404, 405, 406, 407
N6TU---	
NAG---	400
NCS---	102, 103, 104, 105
NET---	101, 102, 103, 104, 105, 106, 130, 133, 134, 135, 136, 155
NETM---	103, 104, 105, 106, 107, 108, 109, 110, 111, 115, 116, 117, 120, 121, 122, 123, 124, 126, 128, 129, 137, 141, 142, 143, 145, 146, 147, 148, 149, 150, 161
NMS---	103
NO6---	104
NODE---	300, 301, 323, 450, 451, 500, 600
NOP---	100, 101, 102, 103, 110, 112
NOPT---	
NPAC---	100, 101, 104, 105, 106, 109, 128, 210, 211, 212, 509, 550, 551, 552
NSC---	
NSS---	100, 101, 104, 107

Message Types	Sub-Types
NWM---	100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 200, 201, 202, 203, 300, 400, 600, 601, 602, 603
OAIN---	200, 201, 202, 203, 204, 205, 206, 207, 300, 301, 302, 303, 304, 305, 500, 502, 503, 504, 505, 506, 507, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 700, 701
OAP---	
OCCP---	
OCS---	100
ODM---	
OLS---	
OM2---	113, 115, 116, 117, 200, 300
OMA---	400, 401, 402, 403, 404, 500, 501
OMPR---	200
OMRS---	
OMX---	
OOC---	
OPP---	
OSAC---	
OSF---	
OSTR---	
PAT---	
PCH---	100, 101, 102, 103, 105, 107, 201, 203, 204, 350, 650
PEND---	100, 101
PES---	100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 116
PM---	100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 124, 125, 126, 127, 128, 129, 130, 131, 132, 139, 140, 141, 150, 151, 152, 154, 160, 161, 162, 163, 165, 166, 167, 168, 170, 171, 179, 180, 181, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 197, 198, 199, 200, 210, 212, 215, 216, 217, 219, 220, 221, 222, 223, 230, 231, 232, 233, 234, 235, 236, 270, 300, 600, 601, 700, 701, 702, 703, 777, 910, 911, 912
PMC---	
POOL---	300, 301, 302, 310, 311, 312, 320, 321, 600, 601
PRA---	
PRFM---	200, 201, 204
PRSM---	
QMIS---	
QMS---	
QSIG---	100, 101, 102, 103, 104, 105, 106, 107, 108, 109
RDT---	300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 600, 601
REPL---	100
RMAN---	101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123
RO---	101, 102, 103, 104, 105
RONI---	100
SA---	
SALN---	100, 101
SCAI---	100, 101, 102, 200, 300, 302, 400
SCP---	
SCR---	100
SCSS---	
SDM---	300, 301, 302, 303, 304, 306, 308, 309, 315, 317, 500, 501, 502, 503, 504, 505, 550, 600, 601, 602, 603, 604, 608, 609, 616, 617, 619, 620, 650
SDMB---	100, 200
SDS---	600, 601
SEAS---	
SECU---	
SLE---	101, 102, 103, 104, 105, 106, 107, 108
SLM---	200, 202, 204, 206, 208, 301, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410
SLNK---	100, 101, 102, 103, 104, 105, 106, 107
SLNW---	

Message Types	Sub-Types
SMDI---	100, 101, 102, 105, 106
SME---	100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111
SNAC---	100, 101, 102, 103, 104, 105
SOC---	300, 301, 302, 303, 304, 305, 306, 307, 308, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 400, 402, 403, 404, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 600, 601, 604, 605, 606, 607, 800, 801, 802, 803
SOS---	100, 101, 102, 103, 104, 105, 106, 107, 109, 110, 111, 120, 130, 132, 602, 603, 604, 605
SPC---	
SRC---	400, 500, 520, 620, 640, 660, 661
SS---	
SSR---	600
STOR---	101, 102, 103, 104, 105, 106, 107, 108
SWCT---	102, 103, 104, 105, 106, 112, 114, 115, 116, 117,
SWER---	
SWNR---	
SYNC---	103, 104, 105, 202, 203, 206, 208, 209
TABL---	
TCAP---	100, 101, 199
TCCI---	100
TELN---	100, 110
TFAN---	
TH---	
TIBM---	100
TKCV---	100
TME---	102
TOPP---	
TOPS---	100, 101, 102, 105, 106, 129
TPS---	100, 102, 104, 201, 300
TQMS---	100
TRAP---	
TRK---	101, 102, 103, 104, 106, 107, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 120, 121, 122, 123, 124, 126, 128, 129, 130, 131, 133, 135, 136, 138, 140, 142, 144, 146, 148, 153, 154, 155, 157, 158, 162, 163, 164, 174, 175, 176, 177, 178, 182, 183, 208, 209, 213, 251, 255, 310, 312, 313, 342, 351, 352, 355, 411, 424, 605, 882
TRKT---	200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 213
TRMS---	450
TSYN---	100, 101
TUPC---	102, 103
TUPL---	600, 601, 602, 603, 604, 605, 606
TVSN---	
UAPM---	300, 301, 302
UCOM---	001
UCPE---	
UOAM---	300, 302
USLG---	
UTR---	100
V5---	103, 108, 150, 152, 153, 200, 201
VIP---	104
VMX---	100, 101
VSN---	100, 101, 107, 108, 109, 110, 111, 112, 113, 115, 117
VSND---	
WARN---	
WARNING	
WTNP---	
WUCR---	101, 102

**HARDWARE REQUIREMENTS****Supported Alpha AXP Processors:**

DIGITAL Personal Workstation au series  
 DIGITAL Ultimate Workstation  
 AlphaStation 600  
 AlphaServer 800, 1000A, 1200  
 Compaq AlphaServer DS10, DS20

AlphaServer 2000, 2100, 4000, 4100  
 Compaq AlphaServer ES40

AlphaServer 8200, 8400  
 Compaq AlphaServer GS60, GS140

**Disk Space Requirements:**

Disk space required for installation:  
 Subset copy: 34 Mbytes  
 Installation: /usr 126 Mbytes

Disk Space Required for Use (Permanent):  
 No specific requirement

**Memory Requirements:**

The minimum memory supported, due to a TeMIP Framework prerequisite, is 128 Mbytes.

However, the use of this software in conjunction with increased memory capability improves performance.

**SOFTWARE REQUIREMENTS**

Compaq Tru64 UNIX® Operating System V4.0F  
 TeMIP Framework V4.0

**OPTIONAL SOFTWARE**

TeMIP Graphical ASCII Toolkit V4.0

**GROWTH CONSIDERATIONS**

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

**YEAR 2000 READY**

This product is Year 2000 Ready.

"Year 2000 Ready" products are defined by Compaq as products capable of accurately processing, providing, and/or receiving date data from, into and between the twentieth and the twenty-first centuries, and the years 1999 and 2000, including leap year calculations, when used in accordance with the associated Compaq product documentation and provided that all hardware, firmware and software used in combination with such Compaq products properly exchange accurate date data with the Compaq products.

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To ensure that this product interoperates properly with other hardware and software, the system tests involving Compaq's TeMIP V4.0 are applicable, as this product was verified as being Year 2000 Ready.

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*Compaq TeMIP Access Module for Nortel DMS MSC/HLR (Fault Management)*

Software License:

- QM-6GDAA-AA

Software Product Services:

- QT-6GD\*\*-\*\* or QR-SP6GD-A9

**Notes:**

1. \* denotes variable fields. For additional information on available services, or hardware platform tiers, refer to the appropriate price book.
2. The QM number corresponding to the TeMIP Graphical ASCII Toolkit V4.0 (Run-Time) must also be purchased (QM-5SMAA-AA).

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