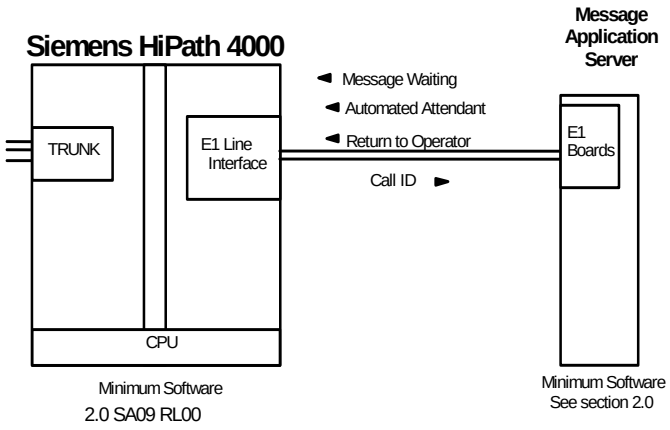
AVAYA

Modular Messaging

Configuration Note 88514 – Rev. C (04/06)

Siemens HiPath 4000

E1 QSIG - EMEA



Overview

This Configuration Note is intended for Avaya certified Modular Messaging technicians/engineers who are familiar with Modular Messaging procedures and terminology. It also assumes that you are Siemens certified or very familiar with the features and functionality of the Siemens PBX supported in this Configuration Note and the QSIG protocol.

Use this document in conjunction with *Modular Messaging Installation Guide* and the Siemens PBX *Administration Guide.*

Please read the entire document before attempting any configuration.

1.0 METHOD OF INTEGRATION

With QSIG E1, one digital pathway between the PBX and the MAS transmits both call information and voice communications

With E1 QSIG integration, one digital pathway between the Siemens HiPath 4000 and the Avaya Message Application Server (MAS) transmits both call information and voice communications. The pathway is provided by an ISDN digital link (QSIG), which provides channels that connect to the Dialogic E1 card. Within the D-Channel, routing information is sent to the MAS containing information regarding the source of the call and with reason codes. The MAS processes call information from the supplementary code in the D-Channel, which routes call reasons directly to mailboxes. Message-Waiting indication is set and canceled using the supplementary code service. Voice is carried through the system in digital format.

2.0 AVAYA MESSAGE APPLICATION SERVER REQUIREMENTS

MAS Requirements

- Dialogic D/600JCT-1E1 or D/300JCT-E1
- CT Bus cable (only required for multiple card installation)
- Software Release MM 2.0 (w/SP4 or later), MM 3.0
- Dialogic Driver Release 5.1.1 FP1 SU15

PBX hardware requirements

3.0 PBX HARDWARE REQUIREMENTS

- DIU-N2 Part # Q2196-X (E1 card)
- **Cables:**
  -RJ45 to RJ48C on the Dialogic (cable depends on PBX connection)

PBX software requirements

3.1 PBX SOFTWARE REQUIREMENTS

- Minimum Supported Software: Version 2.0 SA09 RL00

NOTE: No other releases are supported.

Supported integration features

4.0 SUPPORTED INTEGRATION FEATURES

[✓] Items are supported

System Forward to Personal Greeting

All Calls	[✓]
Ring/no answer	[✓]
Busy	[✓]

Station Forward to Personal Greeting

All Calls	[✓]
Ring/no answer	[✓]
Busy	[✓]

Auto Attendant	[✓]
Call Me	[✓]
Direct Call	[✓]
External Call ID (ANI)	[✓]
Fax	[✓]
Find Me	[✓]
Internal Call ID	[✓]
Message Waiting Indication (MWI)	[✓]
Multiple Call Forward	[✓]
Multiple Greetings	[✓]
N+1	[ ]
Outcalling	[✓]
Queuing	[ ]
Return to Operator	[✓]

NOTICE:

The screens in this Config Note are only for illustration purposes.

It is recommended that a qualified technician review the customer's HiPath QSig programming for accuracy.

5.0 CONFIGURING THE PBX TO INTEGRATE

Consult with your Siemens vendor and ensure the proper hardware, software and system options or features are properly installed to support QSIG. The following programming is intended for certified PBX technicians/engineers. Critical entries are in **BOLD.**

Display the Hardware inventory and ensure a Q2196-X E1 card is available and properly installed to support this integration

```
 <DIS-BCSU;
DIS-BCSU;
H500:  AMO BCSU  STARTED

 ADDRESS :  LTG  1   LTU 1    SOURCE GROUP 1
-----+-----------+---------+---+---+-+------------+-----+--------+-------+
     | ASSIGNED  | MODULE  |FCT|HWY| | INSERTED   |     |        | MODULE|
 PEN | MODULE    | TYPE    |ID |BDL| | MODULE     |STATE| HW-INFO| STATUS|
-----+-----------+---------+---+---+-+------------+-----+--------+-------+
  19 | AVAILABLE                   | | AVAILABLE  |     |        |       |
  25 | Q2246-X     SLMA24        A | | Q2246-X    |  1  | -10 -  | READY |
  31 | Q2246-X     SLMA24        A | | Q2246-X    |  1  | -10 -  | READY |
  37 | Q2168-X     SLMO24     1  A | | Q2168-X    |  1  | -10 -  | READY |
  43 | Q2168-X     SLMO24     1  A | | Q2168-X    |  1  | -10 -  | READY |
  49 | AVAILABLE                   | | AVAILABLE  |     |        |       |
  55 | AVAILABLE                   | | AVAILABLE  |     |        |       |
  61 | AVAILABLE                   | | AVAILABLE  |     |        |       |
  67 | AVAILABLE                   | | AVAILABLE  |     |        |       |
  73 | Q2266-X     LTUCA           | | Q2266-X    |  1  | -11 -  | READY |
  79 | AVAILABLE                   | | AVAILABLE  |     |        |       |
  85 | Q2196-X     DIU-N2     1  A | | Q2196-X    |  1  | -07 -  | READY |
  91 | AVAILABLE                   | | AVAILABLE  |     |        |       |
  97 | AVAILABLE                   | | AVAILABLE  |     |        |       |
 103 | Q6401-X     PBCDG-FU   3  A | | Q6401-X    |  1  | D986-E | READY |
 109 | AVAILABLE                   | | AVAILABLE  |     |        |       |
 115 | AVAILABLE                   | | AVAILABLE  |     |        |       |
 121 | AVAILABLE                   | | AVAILABLE  |     |        |       |

AMO-BCSU -111       BOARD CONFIGURATION, SWITCHING UNIT
```

E1 QSIG Hardware→

Next, ensure the trunk group is created.

```
 <DIS-BUEND
TGRP = 2
FORMAT = L
DIS-BUEND:2,L;
H500:  AMO BUEND STARTED

+------------------------------ FORMAT = L -----------------------------+
|TGRP NUMBER :   2   TGRP NAME   : VOICE MAIL     MAXIMUM NO.   :     60 |
|                    CHARCON     : NEUTRAL                              |
|SUBGROUP NO.:   3   DEVICE TYPE : S2CONN         TRACENO       :      0 |
|SEARCH MODE : CIRCULAR                           ACD THRESHOLD :      * |
|NUMBER OF ASSOCIATED ROUTES     :   1            PRIORITY      :      1 |
|TDDRFLAG    :  ON  TDDRTHRESHOLD: 3             SOURCEGROUPIDX :      1 |
|GDTRRULE    :   0      ACDPMGRP : 0                                      |
|THE FOLLOWING TRUNKS (LTG-LTU-SLOT-CCT) HAVE BEEN ALLOCATED:             |
+-------------------------------------------------------------------------+
|   1- 1- 85-0           1 |  1- 1- 85-0           2 |  1- 1- 85-0     3 |
|   1- 1- 85-0           4 |  1- 1- 85-0           5 |  1- 1- 85-0     6 |
```

```
|   1- 1- 85-0           7 |  1- 1- 85-0           8 |  1- 1- 85-0     9 |
|   1- 1- 85-0          10 |  1- 1- 85-0          11 |  1- 1- 85-0    12 |
|   1- 1- 85-0          13 |  1- 1- 85-0          14 |  1- 1- 85-0    15 |
|   1- 1- 85-0          16 |  1- 1- 85-0          17 |  1- 1- 85-0    18 |
|   1- 1- 85-0          19 |  1- 1- 85-0          20 |  1- 1- 85-0    21 |
|   1- 1- 85-0          22 |  1- 1- 85-0          23 |  1- 1- 85-0    24 |
|   1- 1- 85-0          25 |  1- 1- 85-0          26 |  1- 1- 85-0    27 |
|   1- 1- 85-0          28 |  1- 1- 85-0          29 |                   |
+-------------------------------------------------------------------------+

AMO-BUEND-111     TRUNK GROUP
```

Ensure the Digital E1 Trunks are configured properly.

Trunk Group (example)

```
<DIS-TDCSU:1-1-85-0
PEN2 =
DEV =
TYPE =
TGRP =
FORMAT =
DIS-TDCSU:1-1-85-0,,,,,;
H500:  AMO TDCSU STARTED

+----------------------- DIGITAL TRUNK (FORMAT=L) -----------------------+
| DEV      = S2CONN        PEN      =  1-01-085-0   TGRP     = 2         |
|-------------------------------------------------------------------------|
| PROTVAR  = ECMAV2        INS      = Y             SRCHMODE = CIR       |
| COTNO    = 3             COPNO    = 3             DPLN     = 0         |
| ITR      = 0             COS      = 32            LCOSV    = 32        |
| LCOSD    = 32            CCT      = VOICEMAIL     DESTNO   = 40        |
| SEGMENT  = 1             DEDSCC   =               DEDSVC   = NONE      |
| FACILITY =               DITIDX   =               SRTIDX   =           |
| TRTBL    = GDTR          SIDANI   = N             ATNTYP   = TIE       |
| CBMATTR  = NONE          NWMUXTIM = 10            TCHARG   = N         |
| SUPPRESS = 0             DGTPR    =               CHIMAP   = N         |
| ISDNIP   =               ISDNNP   =                                    |
| PNPL2P   =               PNPL1P   =               PNPAC    =           |
| TRACOUNT = 31            SATCOUNT = MANY          NNO      = 1 -1 -300|
| ALARMNO  = 2             FIDX     = 1             CARRIER  = 1         |
| ZONE     = EMPTY         COTX     = 3             FWDX     = 10        |
| DOMTYPE  = UNKNOWN       DOMAINNO =               TPROFNO  =           |
| INIGHT   =                                       CCHDL    =           |
| UUSCCX   = 16            UUSCCY   = 8             FNIDX    = 0          |
| CLASSMRK = EC     & G711   & G729OPT              SRCGRP   =           |
| TCCID    =                                                              |
|-------------------------------------------------------------------------|
| BCNEG    = N             BCGR     = 1             LWPAR    = 2         |
| LWPP     = 0             LWLT     = 0             LWPS     = 0         |
| LWR1     = 0             LWR2     = 0                                  |
| SVCDOM   =                                                              |
| BCHAN    =  1 && 29                                                     |
|                                                                         |
+-------------------------------------------------------------------------+
 AMOUNT OF B-CHANNELS IN THIS DISPLAY-OUTPUT: 29
```

ECMAV2 - E1 QSIG Protocol→

SEGMENT 1→

Note: SEGMENT 8 is currently not supported with Avaya MM

Note: Due to a current issue with the Dialogic drivers. We are forced to use port 30 on a single span or port 60 on a 2 span system to handle MWI.

These ports are unusable for normal call handling and they can not be included in the trunk group.

Once this issue is fixed, the document will be updated to reflect usage of these ports.

Ensure the Trunk Group's Class of Service includes the following parameters:

```
<DIS-COP:90;
DIS-COP:90;
```

These parameters are recommended →

```
H500:  AMO COP   STARTED

  COP:   3  INFO: 3:CORNET
  DEVICE: INDEP        SOURCE: DB
  PARAMETER:
      LINE WITH START-DIAL-SIGNAL                                    SDL
      SPECIAL MODE                                                   SFRM
      REGISTRATION OF LAYER 3 ADVISORIES                             L3AR
      START-DIALING-SIGNAL TIMER 1 (AMO DTIM2: PARAMETER STADIAL1)   TIM1

AMO-COP  -111       CLASS OF PARAMETER FOR DEVICE HANDLER
```

Ensure the Trunk Group's Class of Trunk includes the following parameters:

```
AMO-COP  -111       CLASS OF PARAMETER FOR DEVICE HANDLER

<DIS-COT:90;
DIS-COT:90;
H500:  AMO COT   STARTED

   COT:   3  INFO: 3:CORNET NQ HIPATH TO HIPATH
   DEVICE: INDEP        SOURCE: DB
   PARAMETER:
      RECALL IF USER HANGS UP IN CONSULTATION CALL                   RCL
      KNOCKING OVERRIDE POSSIBLE                                     KNOR
      CALL EXTEND FOR BUSY, RING OR CALL STATE                       CEBC
      UNRESTRICTED SUFFIX DIALING                                    USD
      NETWORKWIDE AUTOMATIC CALLBACK ON BUSY                         CBBN
      NETWORKWIDE AUTOMATIC CALLBACK ON FREE                         CBFN
      REGISTRATION OF IMPLAUSIBLE EVENTS                             IEVT
      END-OF-DIAL FOR BLOCK IS SET                                   BLOC
      SEND NO NODE NUMBER TO PARTNER                                 LWNC
      CONNECTION TO ROUTE OPTIMIZATION NODE                          ROPT
      LAST REDIRECTING NUMBER IS SEND TO PHONEMAIL                   LRPM
      INCOMING CIRCUIT FROM SYSTEM WITHOUT LCR                       NLCR
      TSC-SIGNALING FOR NETWORKWIDE FEATURES (MANDATORY)             TSCS
      USE DEFAULT NODE NUMBER OF LINE                                DFNN
      INCOMING CIRCUIT FROM SYSTEM WITHOUT LCR (DATA)                NLRD
      LINE WITH IMPLICIT NUMBERS                                     LINO
      NO SIMPLE DIALOG AVAILABLE                                     NOSD
      RESERVED ELEMENT                                               R251
      NO TONE                                                        NTON
```

All these parameters are recommended →

Note: Ensure AOCC is not present on the COT, as this will prevent Call ID transfers failure from the Attendant Console.

Verify the E1 QSIG Protocol is available:

```
  <dis-prode:db,vartab;
DIS-PRODE:DB,VARTAB;
H500:  AMO PRODE STARTED
 PVCDNO : 16 "UNITED STATES OF AMERICA " VERSION: B0-EL0.20.003
 +--------------------+--------+--------+---------------------------+
 | PROTVAR            |        | PDNAME | PDSTRING                  |
 +--------------------+--------+--------+---------------------------+
 | CORNV33            | PDNORM |  PD01  | CORNET-N 1.3f (IM)        |
 |                    | PDA1   |  PD02  | NI-2 PRI MAINTENANCE      |
 |                    | PDA2   |        |                           |
```

This is the E1 QSIG protocol →

ETSI	PDNORM PDA1 PDA2	PD03	EURO-ISDN REF-T USER-SIDE
EDSS1NET	PDNORM PDA1 PDA2	PD04	EURO-ISDN REF-T NET-SIDE
SBQ9311	PDNORM PDA1 PDA2	PD05	S0-BUS DSS1 ETS 300 403)
SBDSS1	PDNORM PDA1 PDA2	PD05	S0-BUS DSS1 ETS 300 403)
PROTVAR		PDNAME	PDSTRING
ECMAV2	PDNORM PDA1 PDA2	PD06	**ISO QSIG Second ed. SS**
SBNIBRI	PDNORM PDA1 PDA2	PD07	S0-BUS NI-BRI GR-268-CORE

Ensure the Classes of Services are configured as recommended:

```
<dis-cossu:LCOSV,32;
DIS-COSSU:LCOSV,32;
H500:  AMO COSSU STARTED
+----+-------------------------------------------------------------------
LCOS|                              LAUTH                                |COPIN
  V |         1         2         3         4         5         6    |
    12345678901234567890123456789012345678901234567890123456789012345678901234|
    |>SERVICE INFORMATION                                               | NUM
----+----+----|----+----|----+----|----+----|----+----|----+----|----+----|----+-
  32|XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX |  0
    |>32 TRUNKS                                                         |
----+-------------------------------------------------------------------+-----+

AMO-COSSU-111       CLASSES OF SERVICE

<dis-cossu:LCOSD,32;
DIS-COSSU:LCOSD,32;
H500:  AMO COSSU STARTED
+----+-------------------------------------------------------------------
LCOS|                              LAUTH                                |COPIN
  D |         1         2         3         4         5         6    |
    12345678901234567890123456789012345678901234567890123456789012345678901234|
    |>SERVICE INFORMATION                                               | NUM
----+----+----|----+----|----+----|----+----|----+----|----+----|----+----|----+-
  32|XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX |  0
    |>32 TRUNKS                                                         |
----+-------------------------------------------------------------------+-----+

AMO-COSSU-111       CLASSES OF SERVICE
```

Display and ensure the Loadware parameters match our recommendation below:

```
<DIS-LWPAR:,,,DIUS2,2;
DIS-LWPAR:,,,DIUS2,2;
H500:  AMO LWPAR STARTED

+-------------------------------------------------------------------------+
| LOADWARE PARAMETERS     CIRCUIT TYPE: DIUS2  SOURCE:DB    BLOCK:    2 |
+-------------------------------------------------------------------------+
| LNTYPE   = COPPER         VERSION  = S2           QUAL     = OFF      |
| MASTER   = Y              DCHAN1   = 16           DCHAN2   = 0        |
| PATTERN  = D5H            QUAL1    = 10  SEC.     QUAL2    = 10  MIN. |
| SMD      = Y              PERMACT  = Y            FCBAB    = DFH      |
| CDG      = N              FIXEDTEI = 0            CNTRNR   = 255      |
| TEIVERIF = N              CRC4REP  = N                                |
| DEV      = INDEP                                                      |
| INFO     = 2:COPPER/MASTER/CLOCK(CORNET)                              |
+-------------------------------------------------------------------------+

AMO-LWPAR-111       LOADWARE PARAMETERS FOR NETWORKING MODULES
```

Ensure a Reference table is created. If not, create one with default values.

```
DIS-REFTA:CIRCUIT,1-1-85-0
KIND =
DIS-REFTA:CIRCUIT,1-1-85-0,;
```

```
H500:  AMO REFTA STARTED
+-------------------------------------------------------------------------
|          R E F E R E N C E   C L O C K   C I R C U I T S
+--------------+---------+----------+---+------+------+------+-----+---
| PEN          | MODULE  | DEVICE   |PRI|ERROR |BLOCK |SUPP. |READY|SRCGRP
|              |         |          |   |      |      |      |BUT  |
|              |         |          |   |      |      |      |ASYN.|
-------------+---------+----------+----------+------+------+-----+-----
 1- 1- 85- 0 | DIU-N2  | S2CONN   |  0|   0  |    N |      |  N  |   1
-------------+---------+----------+---+------+------+------+-----+-----

AMO-REFTA-111       REFERENCE CLOCK TABLE
```

Verify the following System Data is programmed as suggested:

```
<DIS-ZAND:ALLDATA;
DIS-ZAND:ALLDATA;
H500:  AMO ZAND  STARTED

   GENERAL SYSTEM DATA:
   ====================

   TRANSFER = EXTEND  ,  ALERTN   = YES ,
   AUTHUP   = TA  ,
   RNGBKTN  = YES ,      TRANSINH = NO  ,
   NIGHT    = TA  ,
   ITRFWD   = NO  ,      HOLDTN   = MUSIC ,    ANATESIG = TONE  ,
   DSSLT    = 15 ,       CODTN    = NO ,       CONFSUB  = YES ,
   DATEDIS  = DDMM,      CNTRYCD  = 7  ,       RCLLT    = NO  ,
   MELODY   = 3,         TRCD     =       ,    CPBLOWL  = 80 ,
   CPBUPPL  = 100,       CUTHRU1A = YES ,      PREDIA   = NO  ,
   SIUANN   = 2,         CO       = YES ,      COEXN    = 0 ,
   CBKNO    = 5 ,        SEVDIG   = NO  ,      PNNO     = 1 -1  -100,
   DISPMODE = MODE1,     PNODECD  = 150   ,    ROUTOPTP = YES ,
   ROUTOPTD = NO ,       CALLOFF  = NO  ,      PARARING = NO  ,
   DSSDEST  = YES ,      ONEPARTY = NOS ,      MSGDELAY = NO  ,
   EXCOCO   = YES ,      TRDGTPR  = NO  ,      COANN    = YES ,
   HOTDIAL  = NO  ,      TRANSTOG = NO  ,      NOCFW    = NO  ,
   HOLDHUNT = NO  ,      POSTDDLY = YES ,      EXBUSYOV = NO  ,
   OVRMST   = NO  ,      OVRHUNT  = NO  ,      CONITPRO = YES ,
   RECHUNT  = NO  ,      CALLACMP = NO  ;

AMO-ZAND -111       SYSTEM DATA

<DIS-ZAND:ALLDATA2;
DIS-ZAND:ALLDATA2;
H500:  AMO ZAND  STARTED

   GENERAL SYSTEM DATA 2:
   ======================

   HOTELNUM = NO  ,      XFHGMAS  = YES ,
   DSSPICUP = YES ,      FASTCFNA = YES ,
   DISPCHES = NO  ,      DISCLHNT = YES ,
   FWDWACKN = NO  ,      BSYHANDF = NO  ,
   FWDMAX   = 10  ,      FWDVMS1  = YES
   TRCCSN7  = NO  ,      FWDUNDTR = YES
   COSIND   = NO  ,      TRANSCO  = NO
   ANSES    = NO  ,      OLISFREE = ONHOOK  ,
```

These parameters are critical and required for QSIG Path Replacement.

Note: Path Replacement is a PBX function. There is no MM programming to support/control Path Replacement.

```
   TEXTDISP = CENTER,    PABXSELL = HICOM   ,
   DSPOWNNO = YES ,      DIRREC   = NO  ,
   CSDTYPE  = STANDARD,  CONFTNCD = NO  ,
   LNR      = YES ,      ROLCKVCM = NO  ,
   FACBUF   = 47   ,     VCMTRANS = NO  ,
   HOWLTONE = NO  ,      DISPNUUN = *XXX*  ,
   DISPTGNA = YES ,      POSTDRED = NO  ,
   GRCALL   = YES ,      MAILSCRL = YES  ,
   ACTIVE TEXTSEL = ENGLISH        ,
   RELOAD TEXTSEL = ENGLISH        ,
   INDNADIS = YES ,      UUS      = NODIV,
   NOCFWTAC = NO  ,      ISYNCHG  = NO
   ROUTTONE = NO  ,      SOFTREST = SWITOVER,
   CALWTANA = NO  ,      CBPBUSY  = NO ,
   SWSTAT   = YES ,      VIRSUBNO = NO  ,
   ECN      = ,
   OOSTONE  = NO  ,      TYPEDNIS = INTDNIS ,
   CONFTONE = NO  ,      DISPTONE = NO ,
   CAMPON   = NO  ,      USRINGTY = 0;

AMO-ZAND -111       SYSTEM DATA

<DIS-ZAND:ALlA3
DIS-ZAND:ALLDATA3;
H500:  AMO ZAND  STARTED

   ALL SYSTEM-DATA 3:
   ==================

   NWTOPTIM  = 20    SEC ,    DDSIMPFL  = NO  ,
   CIDBON    = YES ,          RENSFWD   = NO  ,
   NETTEAM   = NO  ,          VCOCUG    = NO  ,
   CFUI      = NO  ,          NOCFOOO   = NO  ,
   CLIPSTD   = ETSIFSK ;      CFNRDEST  = ONLYCFNR,
   EXANTRF   = NO  ,          IPDAVCCF  = NO  ,

AMO-ZAND -111       SYSTEM DATA
```

Ensure the Dialing Plan is a “Close Numbering Plan,” as an “Open Numbering Plan” is not recommended.

Example MM Pilot Group # →

```
 <DIS-WABE:GEN,3562
DPLN =
CPS =
DAR =
DIS-WABE:GEN,209849,,,;
H500:  AMO WABE  STARTED
-------------------------------------------------------------------------
| DIGIT INTERPRETATION                VALID FOR ALL DIAL PLANS          |
-------------------------------------------------------------------------
|             |    CALL PROGRESS STATE     |  DIGIT   | RESERVED/CONVERT|
|     CODE    |          1 11111 11112 22  | ANALYSIS | DNI/ADD-INFO    |
|             |0 12345 67890 12345 67890 12|  RESULT  | *=OWN NODE      |
-------------------------------------------------------------------------
|  209849     |. .**** ***** **... ..... .*| STN      |                 |
|             |                            |          |DESTNO  40       |
|             |                            |          |DNNO   1-  1- 300|
|             |                            |          |PNNO   1-  1- 300|
-------------------------------------------------------------------------

AMO-WABE -111       DIALLING PLANS, FEATURE ACCESS CODES
```

Ensure the Trunk Route include the proper info with the following data:

```
<DIS-RICHT:CD
CD =
DPLN =
CPS =
SVC =
TGRP =
LRTE =
DNNO = 1-1-300
ROUTOPT =
DISPL =
DIS-RICHT:CD,,,,,,,1-1-300,,;
H500:  AMO RICHT STARTED
------------------------------------------------------------------------+
| ROUTES FOR ALL DPLN                                          SVC = VCE |

+-------+-----------------+----+-+-----------------------------+----+--
|CODE   |NAME, CQMAX,     |TGRP|P|          DTMF               |LRTE|CPAR|  F|
|       |DESTNO AND CPS   |CCNO|L+---+---+---------------+-----+    |  W|
|       |          1 111112|    |B|CNV|DSP|      TEXT       |PULS |  |  D|
|       |12345 67890 123452|    | |   |   |                 |PAUSE|  |  B|
+-------+-----------------+----+-+---+---+-----------------------+----+--
|*#300  |..... ..... ......|   2| | F | W |                 |PP80 |  40| |
|NEUTRAL|VOICEMAIL          |    | |   |   |                 |     |    | |
 |       |DNNO:  1  -1  -300|    | |   |   |                 |     |    | |
 |       |PDNNO: 1  -1  -300|    | |   |   |                 |     |    | |
 |       |DESTNO  : 40      |    | |   |   |                 |     |    | |
 |       |ROUTOPT : YES     |    | |   |   |                 |     |    | |
 |       |REROUT  : YES     |    | |   |   |                 |     |    | |
 +-------+-----------------+----+-+---+---+-----------------+-----+----+-+
+------------------------------------------------------------------------+
```

These parameters are critical and required for QSIG Path Replacement

Include these additional Commands to the Trunk Route:

These RICHT changes are required.

```
CHANGE-RICHT:CD,209849,,0,
       VCE,DTMF,FIX,,"",PP80;
```

Forwarding Destination. The forwarding should be configured to access MM, but with consideration to the customers need and environment.

Example Extension # →

```
<dis-ziel:fwd,209804;
DIS-ZIEL:FWD,209804;
H500:  AMO ZIEL  STARTED

FWD

SOURCE | SERVICE  | DTYPE |  ITYPE  |  CFVAR  | DESTINATION
-------+----------+-------+---------+---------+------------
209804 | VCE      | CFB   | EXT     | SYSTEM  | 209804
       | VCE      | CFB   | INT     | SYSTEM  | 209804
       | VCE      | CFNR  | EXT     | SYSTEM  | 209804
       | VCE      | CFNR  | INT     | SYSTEM  | 209804

AMO-ZIEL -111       DESTINATIONS FOR VARIOUS STATION FEATURES
DISPLAY COMPLETED;
```

Activate the Forwarding conditions

```
AMO-ZIEL -111       DESTINATIONS FOR VARIOUS STATION FEATURES
REGENERATE COMPLETED;
  <reg-actda:stn,209804;
REG-ACTDA:STN,209804;
H500:  AMO ACTDA STARTED
ADD-ACTDA:STN,209849,FWD,SYSTEM,,,VCE,;
ADD-ACTDA:STN,209849,OPTISET,2,4,2,1,4,NORMAL,2,3;

AMO-ACTDA-111       SUBSCRIBER FEATURES
REGENERATE COMPLETED;
```

Ensure the Least Cost Routing table is programmed as below:

```
  <DIS-LDAT:,90;
DIS-LDAT:,90;
H500:  AMO LDAT  STARTED
+-------------------------------------------------------------------------
LROUTE = 90               NAME = VOICEMAIL               SERVICE =  ALL |
TYPE = NWLCR                                  DNNO OF ROUTE  =        90  |
SERVICE INFO =                                                            |
------+-----+-----+-----+------+----------+------------+----------+------+
      |     |     |     |      | SCHEDULE | CARRIER    |          |      |
LRTEL | LVAL| TGRP|  ODR| LAUTH| ABCDEFGH |       ZONE |    LATTR | LDSRT|
------+-----+-----+-----+------+----------+------------+----------+------+
    1 |    1|   90|   90|  1   | ******** | 1    EMPTY |   NONE   |      |
      | DNNO =        90                                                  |
------+-----+-----+-----+------+----------+------------+----------+------+

AMO-LDAT -111       LCR-DIRECTIONS
```

Ensure the Number Format table is programmed as below:

```
  <dis-lodr:90;
DIS-LODR:90;
H500:  AMO LODR  STARTED
+-----------------------------------------------------+
|  ODR     POSITION  CMD         PARAMETER            |
+--------+-----------------------------------------+
|   90   |      1    ECHO        1                    |
|        |      2    NPI         PRIVATE              |
|        |      3    TON         LOCAL                |
|        |      4    END                              |
+--------+-----------------------------------------+
|INFO:VOICEMAIL                                       |
+-----------------------------------------------------+
H03: THE NEXT FREE ODR IS 2

AMO-LODR -111       ADMINISTRATION OF LCR OUTDIAL RULES
```

Ensure the subscriber sets is programmed as recommended:

```
<dis-sbcsu:209804;
DIS-SBCSU:209804;
H500:  AMO SBCSU STARTED

 ---------------------------- USER DATA --------------------------------
  STNO    =209804   OPT     =OPTI      COS1    =10        DPLN    =0
  MAINO   =209804   CONN    =DIR       COS2    =10        ITR     =0
  PEN     = 1- 1- 37-  3               LCOSV1  =31        COSX    =0
  INS     =Y        ASYNCT  =500       LCOSV2  =31
                    PERMACT =          LCOSD1  =7
  SSTNO   =N        EXTBUS  =          LCOSD2  =7          CBKBMAX =5
  TRACE   =N                                               RCBKB   =N
  ALARMNO =0        DFSVCANA=          SPDI    =10        RCBKNA  =Y
   HMUSIC  =0        FLASH   =          SPDC1   =          CBKNAMB =Y
   PMIDX   =1                           SPDC2   =
                                                           COMGRP  =0
   SECR    =N        DIGNODIS=N         DSSTNA  =N
   STD     =4        CALLOG  =ALL       DSSTNB  =Y      TEXTSEL = ENGLISH

  REP     =0        OPTICOM =N         OPTIUSB :          VPI     =
  IDCR    =N        OPTICA  =1         OPTIS0A :0         VCI     =
                    OPTIDA  =0         OPTISPA :0         PATTERN =
                                       OPTIABA :0
  DCFWBUSY=Y        HEADSET =NOIND                        APICLASS=
  DNIDSP  =Y        HSKEY   =HSIND                        ACFAPPL =
  DTMFBLK =N                           IPPASSW =
  DTMFCTRD=Y        BASICSVC=
  DVCFIG  =OPTI500  TSI     =1         SPROT   =          SOPTIDX =
                                       DPROT   =          DOPTIDX =
                                       FPROT   =          FOPTIDX =
 ------------------- ACTIVATION IDENTIFIERS FOR FEATURES ---------------
  FWDS    :N        HTOS    :N         DND     :N
  FWDD    :N        HTOD    :N         VCP     :Y         TWLOGIN :N
  FWDF    :N        HTOF    :N         CWT     :N
 ------------------- FEATURES AND GROUP MEMBERSHIPS ----------------------
  PUGR    :         ESSTN   :
  KEYSYS  :N        NOPTNO  :
  HUNT CD :N
 ------------------- SUBSCRIBER ATTRIBUTES (AMO SDAT) --------------------
  NONE
 -------------------------------------------------------------------------

AMO-SBCSU-111       STATION AND S0-BUS CONFIGURATION OF SWITCHING UNIT
DISPLAY COMPLETED;
```

Assigned Index to access MM →
(refer to the programming below)

This parameter allows DTMF usage for MM →

Programming PMIDX →

```
ADD-RICHT:PM,1,,,209849,
    VOICEMAIL;
```

Ensure a Mailbox (MB) key is associated with the digital sets to access MM.

```
<dis-tapro:std,1,optiset;
DIS-TAPRO:STD,1,OPTISET;
H500:  AMO TAPRO STARTED
----+--------+-------------------------------------------------------
STD| DIGTYP  | "SERVICE INFORMATION"          KEY LAYOUT
----+--------+-------------------------------------------------------
 1 | OPTIT3  |  "1 ENTRY 3 BUTTON OPTISET ONLY W/OUT MAILBOX"
```

```
   |         |   1 LNR     2 CONS     3 RLS
   + - - - - + - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
   | OPTIA1  |   1 VACANT    2 VACANT    3 VACANT    4 VACANT    5 VACANT
   |         |   6 VACANT    7 VACANT    8 VACANT    9 VACANT   10 VACANT
   |         |  11 VACANT   12 VACANT   13 VACANT   14 VACANT   15 VACANT
   + - - - - + - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
   | OPTIA2  |   1 VACANT    2 VACANT    3 VACANT    4 VACANT    5 VACANT
   |         |   6 VACANT    7 VACANT    8 VACANT    9 VACANT   10 VACANT
   |         |  11 VACANT   12 VACANT   13 VACANT   14 VACANT   15 VACANT
   + - - - - + - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
   | OPTIA3  |   1 VACANT    2 VACANT    3 VACANT    4 VACANT    5 VACANT
   |         |   6 VACANT    7 VACANT    8 VACANT    9 VACANT   10 VACANT
   |         |  11 VACANT   12 VACANT   13 VACANT   14 VACANT   15 VACANT
   + - - - - + - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
   | OPTIA4  |   1 VACANT    2 VACANT    3 VACANT    4 VACANT    5 VACANT
   |         |   6 VACANT    7 VACANT    8 VACANT    9 VACANT   10 VACANT
   |         |  11 VACANT   12 VACANT   13 VACANT   14 VACANT   15 VACANT
+-----+---------+-----------------------------------------------------------

AMO-TAPRO-111       PROGRAMMABLE KEY DEFINITION FOR DIGITAL TERMINALS
```

Save these PBX Changes

```
exe-updat:bp,all;
```

Please refer to the Consideration section at the end of this document for special PBX/MM programming considerations.

Configuring the MAS

6.0 CONFIGURING THE MESSAGE APPLICATION SERVER

Configuring the MAS platform for proper PBX integration requires configuring several menus accessed within the Voice Mail System Configuration application.

- Access the **Voice Mail System Configuration** application from the MAS program group. Expand all fields so all-applicable options are visible.

  The following programming is a continuation from the Modular Messaging (MAS section) Installation Guide:

  1. Select the **Voice Mail Domain**
  2. Expand **PBXs**
  3. Select the newly created **Siemens Hipath (QSIG)**
  4. Access the **General (QSIG) PBX Configuration** tab
  5. **DTMF Inter-Digit Delay during Dialing (ms)** = 80
  6. **DTMF Length during Dialing (ms)** = 80
  7. **DTMF Length during Detection (ms)** = 50

- Next access the **Transfer/Outcall** tab
  Transfer Mode = Blind

- Next access the **Tone Detection** tab
  Maximum Silence before Hanging Up (ms) = 6000

- Next access the **Outgoing Call** tab
  1. **Layer Protocol** = G.711 A-Law
  2. **BC Transfer Cap** = Speech
  3. **Number Type** = Unknown
  4. **Number Plan** = Unknown
  5. **Origin Number** = ***** (see below)
  6. Select **OK** to save changes

Note: Confirm these ISDN values with your PBX vendor. If these values do not match the ISDN protocol, then transfer and out calling will not work.
***** Enter the MAS server pilot number in the Origin Number field.

- Next access the **Message Waiting Indicator (MWI)** tab

  1. **Enable Message Waiting Indicator (MWI)** = Enable by checking the box
  2. **MAS MWI Server** = Enter the name of the MWI server created during the installation procedure.
  3. Scheduled MWI updates: Active or Inactive **= Configure as per customer requirements.***
  4. **Maximum Requests per Minute** = 200
  5. **Message Application Servers that Support MWI** = This box should contain a list of MAS servers capable of placing MWI requests.
  6. Select **OK** to save changes

***Note: The Scheduled MWI updates parameter is only available on MM 3.x**

- Next access the **Port Groups** General tab under the MAS name
  1. Click **Add Group** button
  2. Name Group **MWI**
  3. Within the new **MWI** Port Group uncheck all **Ports** except the MWI port. This will be the upper most port of the Trunk Group. Port 29 on a single board, or Port 59 if 2 boards are used (see side NOTE).
  4. Select the **Default Group** under **Port Groups** and ensure it is configured to meet the customer's need for **Incoming** and **Outgoing** under **Port Group Usage**.
  5. Next check all **Ports** (including the MWI port).

NOTE: The MWI port within the MWI Port Group it's used by the MWI sub-system to control concurrent MWI requests. This does not affect incoming/outgoing traffic to the port in anyway. All MWI function is handled by the D-Channel.

6. Select **OK** to save changes

- Next access the **QSIG General** tab within the **PBX Type** tab

1. Telephony Type = **Dialogic QSIG**
2. Under PBXs ensure **Siemens Hipath (QSIG)** is selected
3. Select **OK** to save changes

Tip: To make the QSIG or set emulation telephony interface active, click the down arrow and click **Make Active**. If the QSIG or set emulation telephony interface is already active, this field does not appear.

- Next access the **General** tab within the **Telephony Interface (Dialogic-QSIG)** tab

Note: Refer to Consideration 8.6 at the back of this document.

1. **Playback Volume** = 2
2. **Maximum Concurrent Calls** = Enter the number of ports connected to the PBX (i.e. 29)
3. **Port** = Ports are enabled by default

Note: The MAS service must be restarted to allow port disabling.

4. Select **OK** to save changes

- Next access the **General** tab within the **PBX Integration**

1. **QSIG** = Enable by checking the box
2. Access the **QSIG/DSE** tab
3. **Port Group Name** = MWI (or name used in Port Groups)
4. **Max MWI Sessions** = 1
5. **Indicator On/Off signals must use same port** = Enabled by checking the box
6. **MWI On Field** = ^O,%s,^O (Gray out, no changes)
7. **MWI Off Field** = ^F,%s,^F (Gray out, no changes)
8. Select **OK** to save changes

After making these changes, return to “Configuring the voicemail system” within the S3400 Message Server Installation guide. Ensure you are prompted to restart the Message Application Server services to apply these changes.

8.0 CONSIDERATIONS/ALTERNATIVES

Important notes regarding this integration

8.1 Within the **Voice Mail System Configuration**, access the "Telephone User Interface," and under the "Receptionist" tab, DO NOT select "Inform Subscriber Transfer is from Auto Attendant" (leave unchecked). Otherwise we will see issues with tromboning and Path Replacement.

8.2 Find Me and Call Me phone numbers do not support using commas in the dial string before an '&'. Comma usage must be entered after an '&' in the dial string within the MM Subscriber Option (client s/w).

8.3 The following Registry Entries must be added:

- Open up Registry Editor on the MAS by going to **START -> Run -> "regedit"**
- Map: **My Computer ->HKEY_LOCAL_MACHINE ->SOFTWARE ->Octel ->Geneva->Vcm_TelephonyServiceMgr->QSIG**
- In this folder add a new DWORD value named **AntiTromboneDTMFDisable** and set it with value **0**
- Add another new DWORD value named **UMAnswerDetectWait** and set it to **1200** decimal.

8.4 Calls transfers from the Auto Attendant do not display the Call ID to ringing phones. The Call ID is not provided until the subscriber answers the phone.

8.5 MWI will fail if both QSIG E1 spans are configured for QTE. When configuring the **QSIG E1** board (refer to page 4-39 of the MM Installation Guide) ensure only the first span is configured for **QTE** within the **Interface** tab, under the **ISDNProtocol.** The second span should be configured for **"none."**

8.6 A registry key is needed for call diversion on Do Not Disturb and Delayed Call Forward on Busy. When registry key is added calls will then divert via a Busy Condition. Without registry key calls will be treated as a direct call to the system.

Registry key setting:

[HKEY_LOCAL_MACHINE\SOFTWARE\Octel\Geneva\Vcm_TelephonyServiceMgr\QSIG]
"DefaultDiversionReason"=dword:00000003

- - - - - - - - -

CHANGE HISTORY		
Revision	**Issue Date**	**Reason for Change**
A	11/08/05	GA Release
B	03/30/06	Added requirement of minimum of MM2.0 SP4 or later in Section 2.0
C	04/11/06	Updated CN to meet MM 3.0. Added new Schedule MWI update parameter noted for MM3.0 in Section 6.0 Removed Consideration = DND not supported. Removed Consideration = Caller ID not passing until call answered. This was fixed in MM3.0 Added Consideration 8.6 – registry key needed for call diversion for DND and Delay.

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