Configuration Note 88541 – Version K (1/10)

AVAYA Tenovis Integral-55

E1/QSIG - EMEA

Avaya Tenovis Integral-55 PBX

Message Application Server

PSTN

◄ Automated Attendant ►
◄ Return to Operator
◄ Message Waiting
Caller ID ►

Supported Versions:
(see Section 2.0)

Minimum Software:
Refer to Section 3.1
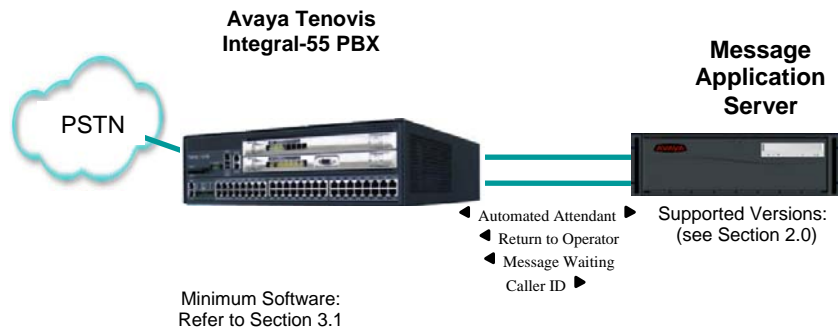
The PBX and MM are assumed to be collocated. For other configurations please consult with the Switch Integrations group.

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 Avaya certified or very familiar with the features and functionality of the Avaya PBXs supported in this Configuration Note and the QSIG protocol.

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

Please read the entire document before attempting any configuration.

1.0 METHOD OF INTEGRATION

With E1 QSIG, one digital pathway between the PBX and the Avaya Message Application Server transmits both call information and voice communications

With E1 QSIG integration, one digital pathway between the Avaya™ PBX 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 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.

MAS Requirements

[1]**Release Note**:
Should features of the integration not function optimally when integrated to a PBX or MM that may be operating on an unsupported software release as defined Section 2.0 and 3.1, customers will need to upgrade their PBX and/or MM to a supported software release.

PBX hardware requirements

PBX software requirements

2.0 AVAYA MESSAGE APPLICATION SERVER REQUIREMENTS

- Dialogic D/600JCT-1E1 or D/300JCT-E1

- CT Bus cable (only required for multiple card installation)

- Software Releases [1]: 3.x, 4.0, 5.x

3.0 PBX HARDWARE REQUIREMENTS

- DS1 card # xxx . One per each Dialogic E1 Interface Card

- Cables:
  -RJ45 on the Dialogic (cable depends on PBX connection)

3.1 PBX SOFTWARE REQUIREMENTS

- Minimum Software [1]: I55

Important: Before ordering account teams should check with Avaya Services to determine if there are any applicable patches for customer specific configuration

- ISDN PRI

- Private Networking

- Basic Call Setup

- Basic Supplementary Services

- Supplementary Services with Rerouting

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	[✓]
Multiple Call Forward	[✓]
Multiple Greetings	[✓]
N+1	[✓]
Outcalling	[✓]
Queuing	[ ]
Return to Operator	[✓]

IMPORTANT: PBX options or features not described in this Configuration Note are not supported with this integration. To implement options/features not described in this document, please contact the Avaya Switch Integration product manager.

- continued on next page –

5.0 CONFIGURING THE PBX TO INTEGRATE

The following programming is intended for <u>certified</u> PBX technicians/engineers. The screens shown in this section are taken from an Avaya PBX administration terminal. Some parameters may not appear on all software releases.

Ensure all required software features are enabled on the PBX. Access the System Parameters Customer Options form. Below is an example of the forms required for QSIG integration, with the required features in **boldface**.

Message Waiting:

For MWI the correction of PEM 171458 is necessary.
This correction is first available in Release E070V08_1_2_3.

ICU Setup:

The QSIG Line is configured like a standard QSIG Line.
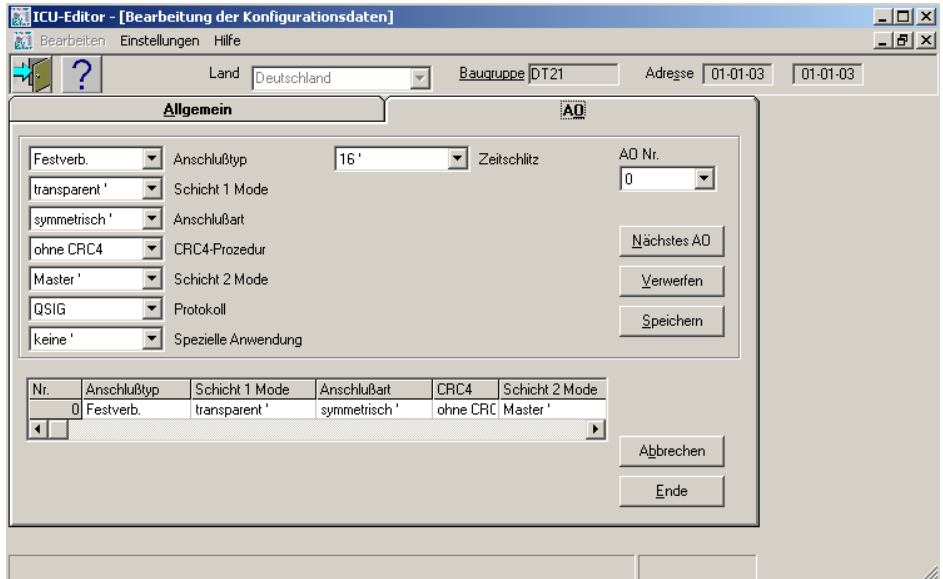**The CRC4 Check procedure was in the test case disabled !**

Settings in AOGD:

```
AOGD<anzg:,01-01-03-00;
===============================================================================
==
                                                                      03.05.06
08:15:49
Rufnummern an HWA 01-01-03-00 :
-------------------------------
A1000 default Rufnummer
===============================================================================
==
                                                                      03.05.06
08:15:49
Anschlussorgan
--------------
Rufnummer              : A1000 - A1029
Steckplatz/HWA         : 01-01-03-00
AO-Typ                 : PRN
===============================================================================
==

Allgemeine ADS-Daten
--------------------
Name                     :
Kostenstelle             : 00000
Protokolle               :
                           Protokoll | Version | faulty | busy 2| error
                           ----------+---------+--------+-------+------
                           QSIG      | 0       | AUS    | AUS   | AUS
Ueberlastprioritaet      : 2
SPWKGR. Amtszugriff      : 1
SPWKGR. COLISEE          : 0
DISA-Gruppe              : 0
Haendlergruppe           : 0
Rufnr.zuord. HKZ u.QUE   :
Kategorie                : 0
```

```
Wartefeld Maximum          : 10
Reservierte
Verbindungsspeicher        : 0
Dienstspeicher             : 2
AO-Zustand                 : LTG PRUEFEN
Service-Sperre             : sv-frei
Rufnummern-Sperre          : Aus
========================================================================
==

Dienstdaten
-----------
```

	TLP	GEN		
Zustand	FREI	FREI		
Wahlgruppe	10	10		
Verkehrsgruppe	1	1		
Umschaltegruppe	0	0		
Codewahlgruppe	0	0		
LCR-Gruppe	0	0		
Wahlabruf	DEAKTIV	DEAKTIV		
Rueckausloesen	DEAKTIV	DEAKTIV		

```
========================================================================
==

B-Kanal-Daten
-------------
Vergabekennung      : NSTA
Verhandlungskennung : AKTIV
```

B-Kan- Nr.	Buendel- nummer	Richtg	Zugr	Zustd		B-Kan- Nr.	Buendel- nummer	Richtg	Zugr	Zustd
1	10	W	M	F		16	10	W	M	F
2	10	W	M	F		17	10	W	M	F
3	10	W	M	F		18	10	W	M	F
4	10	W	M	F		19	10	W	M	F
5	10	W	M	F		20	10	W	M	F
6	10	W	M	F		21	10	W	M	F
7	10	W	M	F		22	10	W	M	F
8	10	W	M	F		23	10	W	M	F
9	10	W	M	F		24	10	W	M	F
10	10	W	M	F		25	10	W	M	F
11	10	W	M	F		26	10	W	M	F
12	10	W	M	F		27	10	W	M	F
13	10	W	M	F		28	10	W	M	F
14	10	W	M	F		29	10	W	M	F
15	10	W	M	F		30	10	W	M	F

```
Anzahl der belegbaren B-Kanaele: 30
```

Belegungsrichtung		Zustand

Note: Due to a current issue with the Dialogic drivers. We are forced to use the highest order timeslot/port (timeslot/port 30 on a single span or timeslot/port 60 on a 2 span system) to enable MWI, even though **MWI is sent on the** *D-Channel.*

The highest order timeslot (höchster Kanal) channel is not to be used for call handling and should not be included as a member in the trunk group.

Therefore, only 29 ports are available on an MAS with one E1 card, or 59 ports on an MAS with two E1 cards.

```
G - gehend                              |  B  - BELEGT
K - kommend                             |  D  - DEFEKT
W - wechselseitig                       |  EB - EDSS1 BELEGT
                                        |  ER - EDDS1 RESERVIERT
                                        |  F  - FREI
                                        |  G  - GESTOERT
Zugriffsrecht                           |  R  - RESERVIERT
--------------------------------        |  S  - SPERRZUSTAND
M - mit                                 |  T  - DEFEKT/GESPERRT
O - ohne                                |  V  - BELEGT/GESPERRT
===========================================================================
==
AOGD<
```

Settings in AOLM:

```
AOLM<aalm;
                                                              03.05.06
08:17:28
  AO-Nummer  AO - Leistungsmerkmale ( Dienst : TLP )
-----------------------------------------------------------------------------
--

  A1000      AMT   CIPL0 DQV    PRE    CRF    QIS
AOLM<dibe:gen;
AOLM<aalm;
                                                              03.05.06
08:17:42
  AO-Nummer  AO - Leistungsmerkmale ( Dienst : GEN )
-----------------------------------------------------------------------------
--

  A1000      AMT   CIPL0 DQV    PRE    CRF    QIS
AOLM<
```

Settings in BNDL:

```
BNDL<dbnd:10;
                                                              03.05.06
08:18:45
Buendelnummer           : 10
Ueberlaufbuendelnummer  : 0
Buendelzustand          : frei
Buendelart              : ALV
ALV-Stufe               : LM uebergreifend
Belegungsrichtung       : init
verfuegbare Leitungen   : 0
Leitungslimit           : 0
Leitweg-Ziffernfolge    : -
Nachwahlflag            : nein
QSIG Line               : nein
Informationstext        : PRN QSIG Master

- VWZ-Daten
gehend:
    Zuordnungsziffer   : -1,-1,-1,-1,-1,-1,-1,-1,-1,-1
          Selektor     : 0
kommend:
    Zuordnungsziffer   : -1,-1,-1,-1,-1,-1,-1,-1,-1,-1
          Selektor     : -1

- PABX Zugangsnummern: ISDN-NP
```

```
              Land              nation.         Zugriffs-       def. DDI-
Part
                                Ziele           code Tln.       Tln. Nummer
   gehend :  -                  -               -               -
  kommend :  -                  -               -               -

- PABX Zugangsnummern: Priv.-NP
            Level2            Level1          Zugriffs-       def. DDI-
Part
                                              code Loc.       Local Nr.
   gehend :  -                  -               -               -
  kommend :  -                  -               -               -

- Prefixes : ISDN-NP:
            NPI-Pref.        TON-Pref-       TON-Pref-       TON-Pref
                             Internat.       National        Subscr.
   gehend :  -                  -               -               -
  kommend :  -                  -               -               -

- Prefixes : Priv.-NP:
            NPI-Pref.        TON-Pref-       TON-Pref-       TON-Pref
                             Level 2         Level 1         Local
   gehend :  -                  -               -               -
  kommend :  -                  -               -               -

- Level  ISDN-NP
   gehend : init
  kommend : init

- Level Priv.-NP
   gehend : init
  kommend : init

AZP-Reaktionen fuer Buendel
Ereignis  Reaktion
------------------
nstf      apso
nstb      apso
kres      apso
uvwa      apso
newa      apso
nbao      apso
anaw      apso
kbne      apso
aoab      apso
nuel      apso

Eingetragene Leitungen :
-----------------------
--------------------------------------------------------
Erlaeuterung fuer AZP-Daten - AZP-Ereignis:
-------------------------------------------
NSTF - Nebenstelle frei      NSTB - Nebenstelle besetzt,
KRES - keine Ressourcen frei  UVWA - unvollstaendige Wahl,
NEWA - nicht erlaubte Wahl    NBAO - nicht beschaltetes AO,
ANAW - Anruf abgewiesen       KBNE - kommende Belegung nicht erlaubt
AOAB - AO ausser Betrieb      NUEL - Netz ueberlastet
Erlaeuterung fuer AZP-Daten - AZP-Reaktion:
-------------------------------------------
APSO - Abwurf zum Platz sofort  APNZ - Abwurf zum Platz nach Zeit
AUSL - Verbindung ausloesen    NEIN - keine AZP-spezifische Reaktion
                                      (Behandlung als waere AZP nicht
aktiv)
BNDL<
```

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

6.0 CONFIGURING THE MESSAGE APPLICATION SERVER

Configuring the MAS

Configuring the MAS platform for proper PBX integration requires configuring several menus accessed within the **Voice Mail System Configuration** application, and a <u>certified</u> MM engineer.

- Access the **Voice Mail System Configuration** application from the MAS program group.
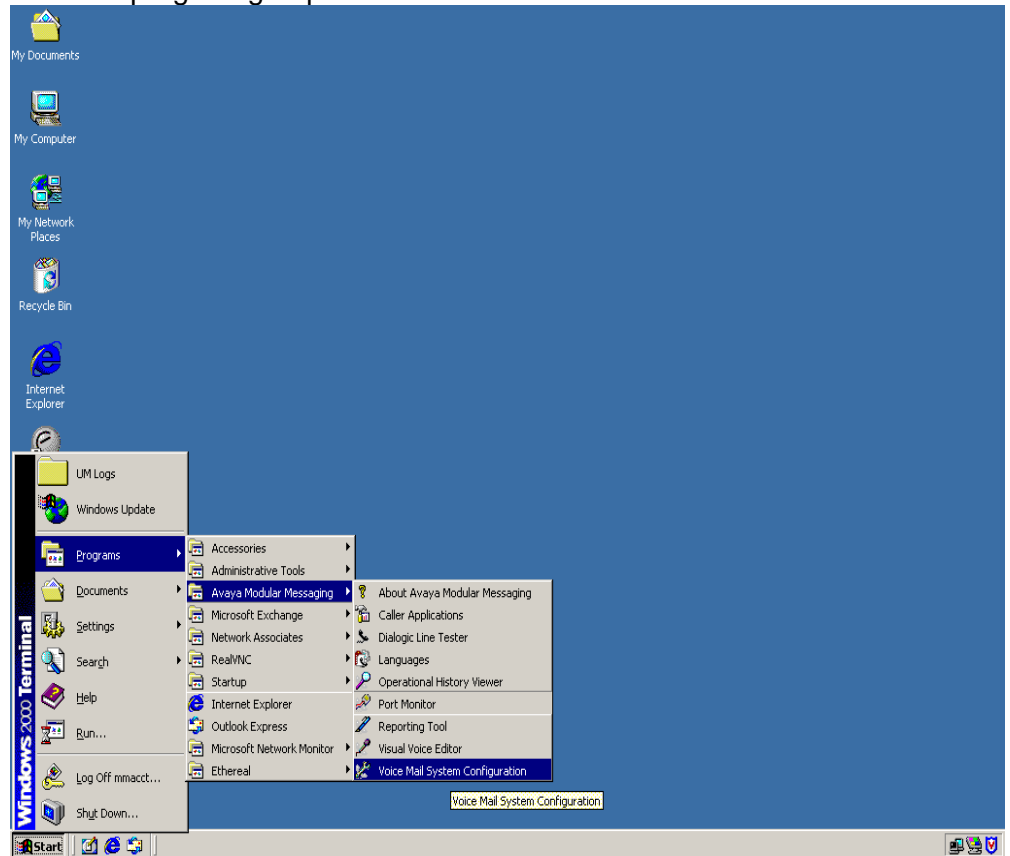
Special Note: Verify the CRC value in the QTE.PRM is set correctly. If left uncorrected the Dialogic E1 boards will not initialize properly. The file is found in:

C:\Program Files\Dialogic\data**qte.prm**

Open the qte.prm file. About 23 lines into the file text you will see a setting under the line as show in bold below.

```
        ;---
        ;--- CRC ENABLE SWITCH (Parameter type 0FH - E1 only)
        ;--- Turns the transmission of the CRC4 pattern on or off and searches
        ;--- for such a pattern in the received signal.
        ;--- Possible values for the data are as follows:
        ;---    00H = Turn CRC off.
        ;---    01H = Turn CRC on.
        ;--- The default data value is 00H (Turn CRC off).
        000F 01
```

The example number shown above in blue is incorrect. Change this from 000F 01 to **000F 00.**
Save then file and then reboot the MAS.

Expand all fields so all-applicable options are visible:
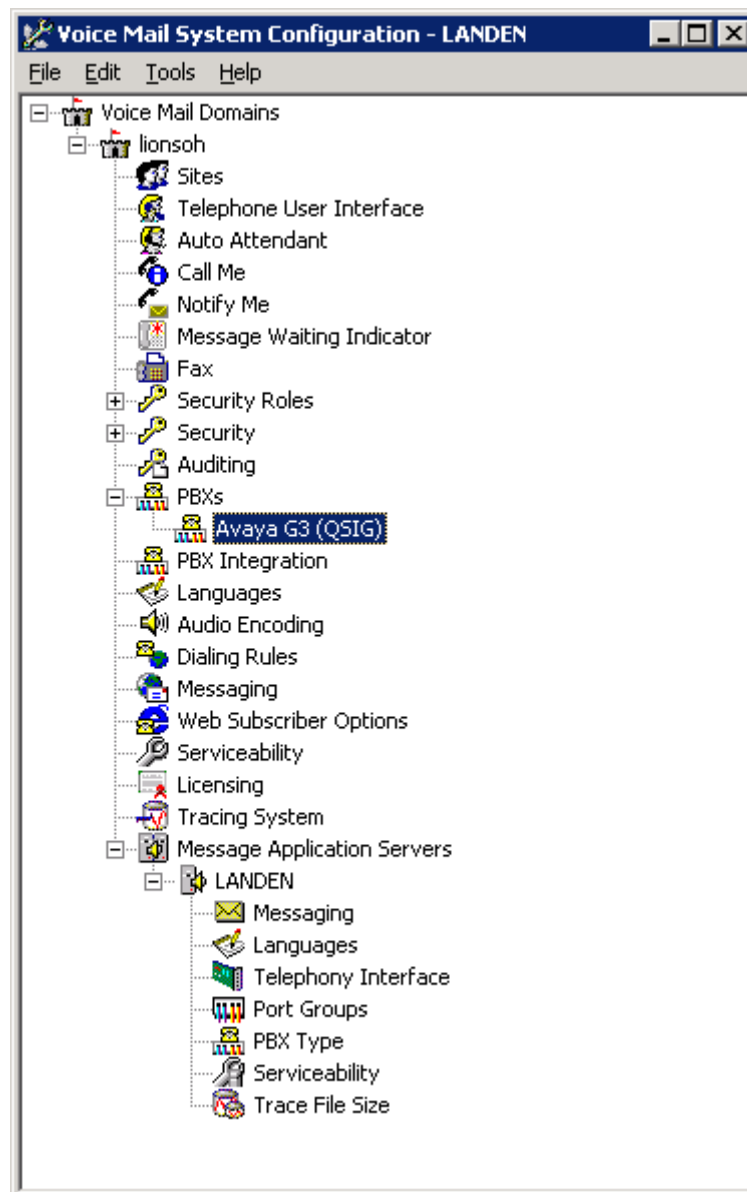
Note: Starting with MM 5.0 additional Fields such as *Sites and PBX Integration* will appear on the VMSC screen.
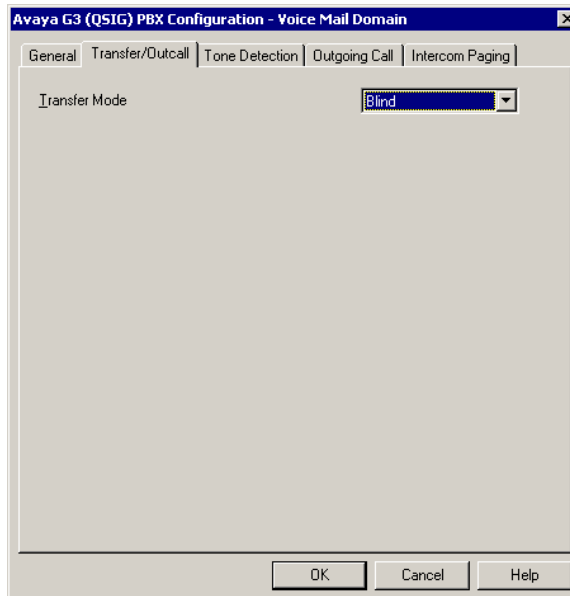
Ensure the new PBX is added as instructed by the Modular Messaging Installation guide. The new PBX should be:

Avaya G3 (QSIG)

1. Select the **Voice Mail Domain**
2. Expand **PBXs**
3. Select the newly created **Avaya G3 (Dialogic 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

Avaya G3 (QSIG) PBX Configuration - Voice Mail Domain

General | Transfer/Outcall | Tone Detection | Outgoing Call | Intercom Paging

DTMF Inter-Digit Delay during Dialing (ms)   80

DTMF Length during Dialing (ms)   80

DTMF Length during Detection (ms)   50

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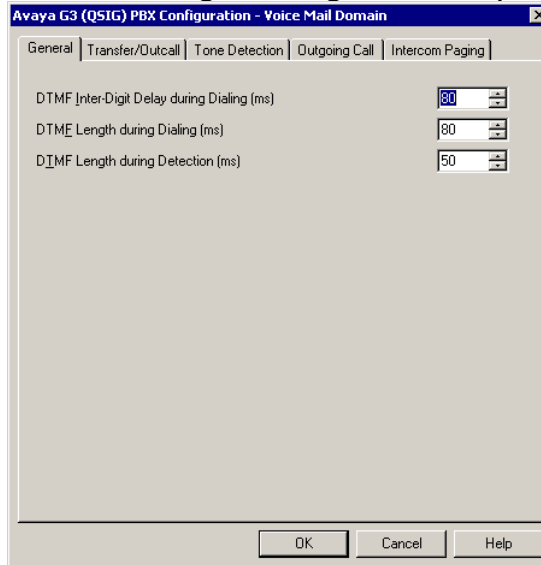
- Next access the **Transfer/Outcall** tab
  Transfer Mode = Blind

Avaya G3 (QSIG) PBX Configuration - Voice Mail Domain

General | Transfer/Outcall | Tone Detection | Outgoing Call | Intercom Paging

Transfer Mode   Blind

OK   Cancel   Help

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

Avaya G3 (QSIG) PBX Configuration - Voice Mail Domain

General | Transfer/Outcall | Tone Detection | Outgoing Call | Intercom Paging |

Maximum Silence before Hanging Up (ms)   6000

OK   Cancel   Help

▪   Next access the **Outgoing Call** tab

Avaya G3 (QSIG) PBX Configuration - Voice Mail Domain

General | Transfer/Outcall | Tone Detection | Outgoing Call | Intercom Paging |

Layer1 Protocol   G.711 A-Law

BC Transfer Cap   Speech

Number Type   Unknown

Number Plan   Unknown

Origin Number   3000

OK   Cancel   Help

Layer Protocol = G.711 A-Law
BC Transfer Cap = Speech
Number Type = Unknown
Number Plan = Unknown
Origin Number = 3000 (The number entered here must be the number entered in
the "Voice Mail Number" field of the Hunt Group minus the number of leading
digits administered in the route pattern to delete. In our example, the Voice Mail
Number is "4573000" and the number of digits to delete in the route-pattern is 3;
therefore, the number entered here must be "3000"
Select **OK** to save changes

Note: Layer protocol fields should match the Interface Companding setting
selected on Page1 of the DS1 Circuit Pack configuration screen on Page 7
of this configuration note.

▪   Next access the **Message Waiting Indicator (MWI)** tab
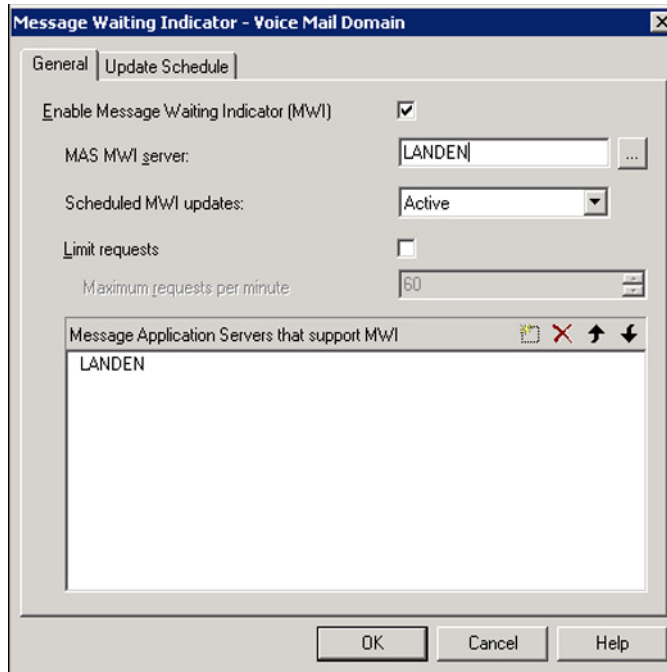
<table>
<tr><td align="center">**Support NOTE**
for MM 1.1 & 2.0 only:

• Limit Requests should be checked.
• Maximum Requests per Minute should be set for 200.</td></tr>
</table>

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. **Limit requests** = Leave Unchecked
5. **Maximum requests per Minute** = <grayed out>
6. **Message Application Servers that Support MWI** = This box should contain a list of MAS servers capable of placing MWI requests.

Select **OK** to save changes

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

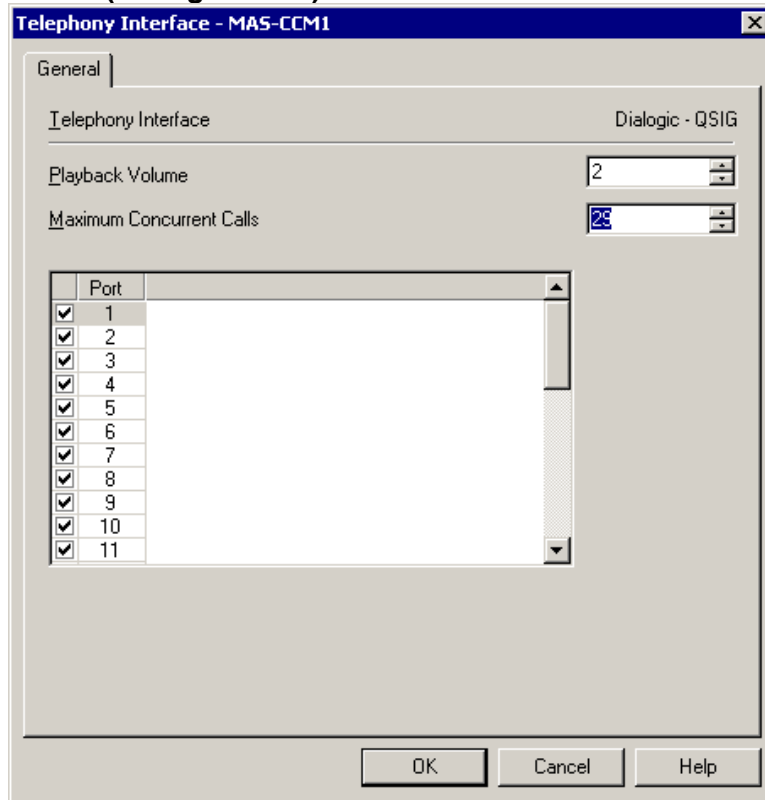**Tip:** To make the QSIG or set emulation telephony interface active, click the down arrow and click **Make Active**.
If the QSIG or set emulation telephony interface is already active, this field does not appear.

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

Telephony Interface - MAS-CCM1

General

| Telephony Interface | Dialogic - QSIG |

Playback Volume   2

Maximum Concurrent Calls   29

	Port
✔	1
✔	2
✔	3
✔	4
✔	5
✔	6
✔	7
✔	8
✔	9
✔	10
✔	11

OK   Cancel   Help

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

Note: For a QSIG link, the total number of ports specified must occupy the first available set of contiguous channels. For example, if there are two boards on a system, one with 10 ports enabled and one with 29 ports enabled, then the first 10 ports will be enabled on one boards, and all 29 on the second board. Use the port checkboxes to enable or disable the correct ports.

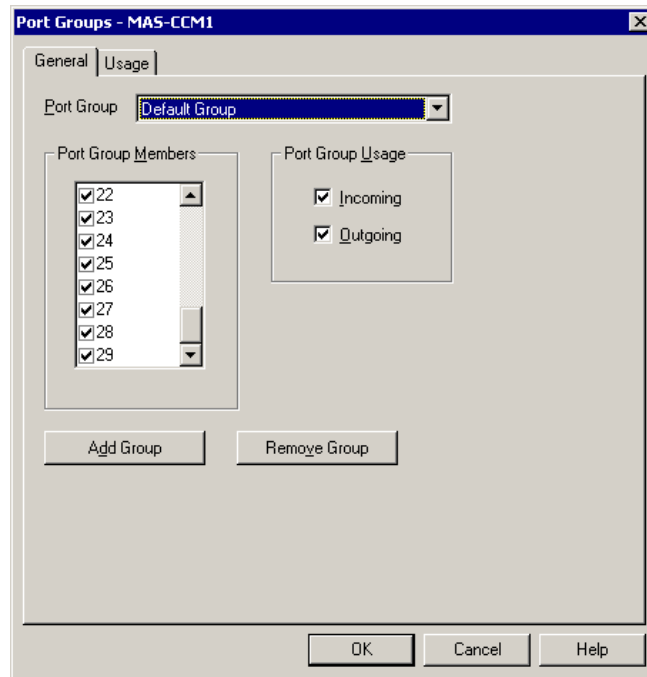- Next access the **Port Groups** tab under the MAS name
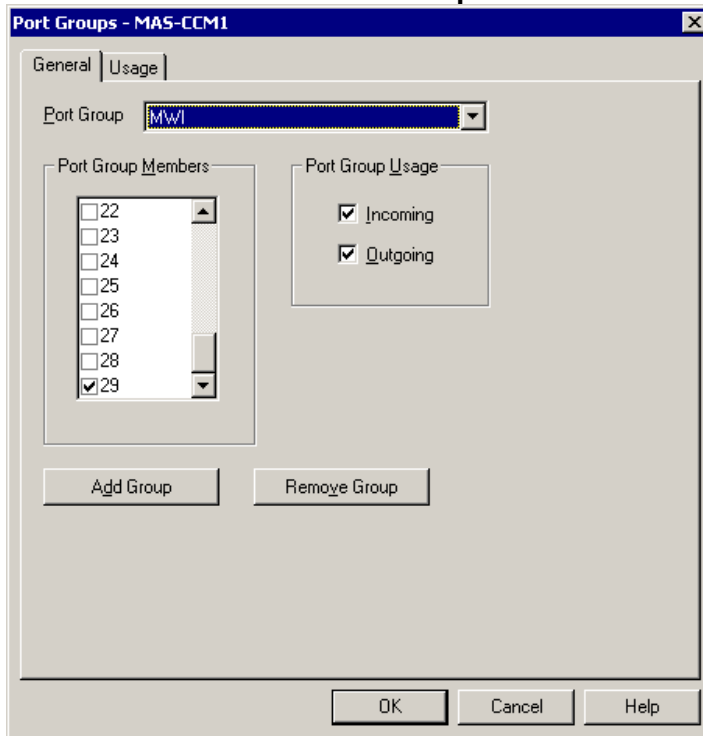
NOTE: The MWI port within the MWI Port Group it's used by the MWI sub-system to control concurrent MWI requests. This does not affect incoming/outgoing traffic to the port in anyway.

Click **Add Group** button

Name Group **MWI**

Within the new **MWI** Port Group <u>uncheck</u> 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 (see side NOTE). This port can receive calls, so ensure it is programmed for both **Incoming** and **Outgoing** under the **Port Group Usage**

Return to the **Port Groups** General tab and ensure the **Default Group** under **Port Groups** is configured to meet the customer's need for **Incoming** and **Outgoing** under **Port Group Usage**.

Port Groups - MAS-CCM1   ☒

General | Usage |

Port Group   [Default Group   ▼]

┌─ Port Group Members ─┐   ┌─ Port Group Usage ─┐
│ ☑22   ▲   │   │   ☑ Incoming   │
│ ☑23   │   │   ☑ Outgoing   │
│ ☑24   │   │   │
│ ☑25   │   └─────────────────────┘
│ ☑26   │
│ ☑27   │
│ ☑28   │
│ ☑29   ▼   │
└───────────────────────┘

[Add Group   ]   [Remove Group]

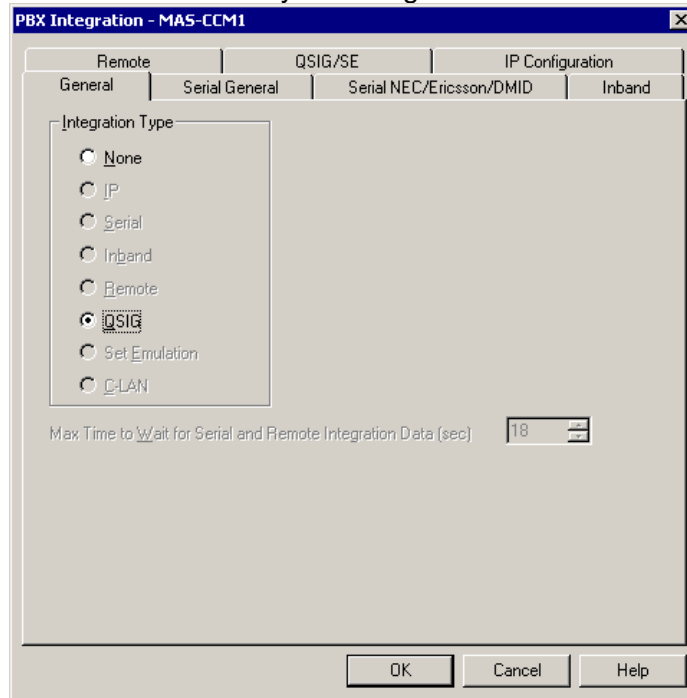[OK   ]   [Cancel]   [Help   ]

Access the **Port Group** General tab and <u>check</u> all **Ports** (1-29 for a single span or 1-59 if 2 spans) including the MWI (29 or 59) port.
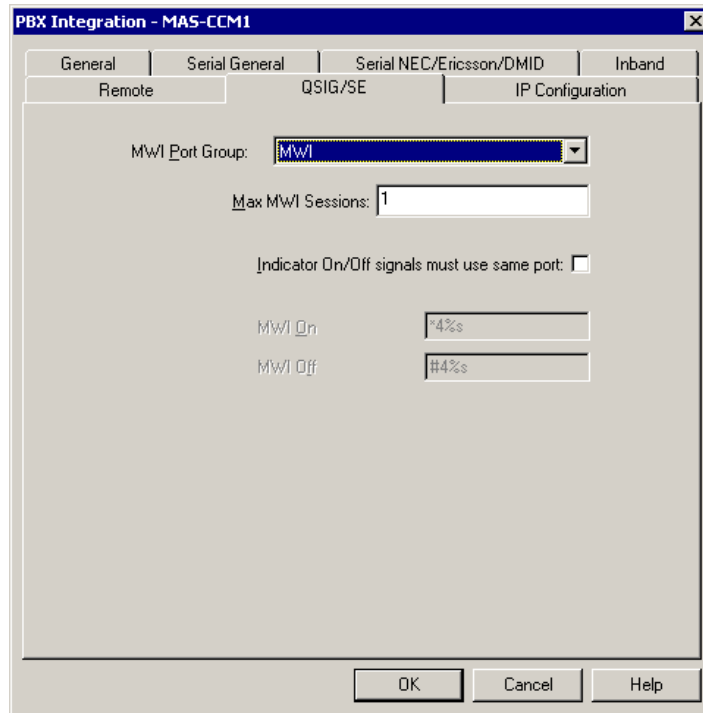Select **OK** to save changes

NOTE: This Port Group configuration applies to each MAS

▪   Next access the **General** tab within the **PBX Integration**
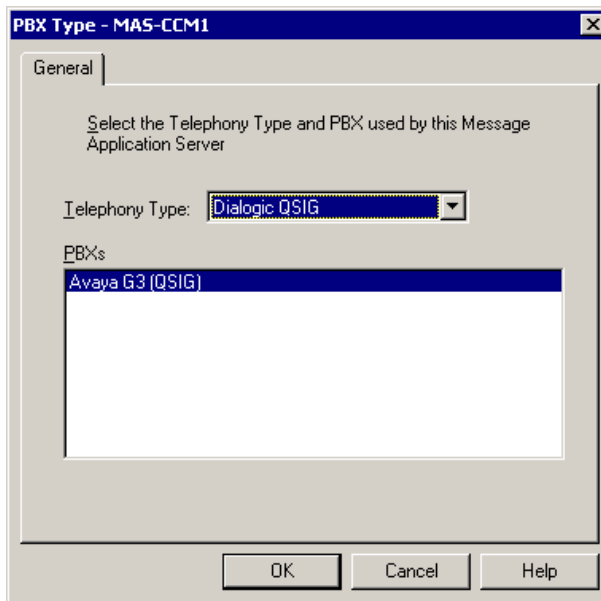   1. **QSIG** = Enable by checking the box

   2. Access the **QSIG/DSE** tab

3. **Port Group Name** = MWI
4. **Max MWI Sessions** = 1
5. **Indicator On/Off signals must use same port** = Leave Blank
6. **MWI On Field** = Leave as default (can't be changed)
7. **MWI Off Field** = Leave as default (can't be changed)
8. Select **OK** to save changes

▪ Next access the **General** tab within the **PBX Type** tab
1. Telephony Type = **Dialogic QSIG**
2. Under PBXs ensure **Avaya G3 (Dialogic QSIG)** is selected
3. Select **OK** to save changes

PBX Type - MAS-CCM1   ⊠

General

Select the Telephony Type and PBX used by this Message Application Server

Telephony Type: Dialogic QSIG ▾

PBXs

Avaya G3 (QSIG)

| OK | Cancel | Help |

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

Important: In order to make this integration work. The following Registry Keys should be set in the MAS as shown below.

```
[HKEY_LOCAL_MACHINE\SOFTWARE\Octel\Geneva\Vcm_TelephonyServiceMgr\QSIG]
"CTLayer3PBX"=dword:00000001

[HKEY_LOCAL_MACHINE\SOFTWARE\Octel\Geneva]
"TUIDirectCallToDivert"=dword:00000002

[HKEY_LOCAL_MACHINE\SOFTWARE\Octel\Geneva\Vcm_TelephonyServiceMgr\QSIG]
"OperationOffset"=dword:00000006
```

Registry Keys must be set as shown here.

"Operation Offset" establishes a proper Layer 3 handler in MM for integration to a Tenovis PBX.

8.0 CONSIDERATIONS/ALTERNATIVES

8.1 **QSIG Integration does not support forwarding/transfer from a
Vector.** Currently, if calls are routed from a vector to the QSIG link(s)
connected to the MAS, the call will not pass the VDN as the called
party ID. Applications requiring calls that are routed from vectors to
mailboxes on the MAS can be configured so as to route calls to
phantom extensions (X-ports) configured to call-cover all-calls to the
MAS hunt group.

8.2 **Outcalls to pagers placed over analog trunks may fail.** If the CO
connecting the analog trunks to the PBX does not provide answer
supervision, the MAS will not out-pulse DTMF digits to the pager
terminal. This problem can be eliminated by installing a Call Classifier
board in the PBX (if one is not already installed), enabling system
parameter customer-option "Answer Supervision by Call Classifier",
and enabling "Answer Supervision" in the Trunk Group associated with
the outgoing analog trunks accessed during the outcalls. Outcalls over
digital trunks are not affected.

8.3 **Transfers to ringing use additional ports.** When performing
unsupervised transfer, and the transferred-to extension forwards back to
the MAS, additional ports are tied up on the MAS server, as "Path
Replacement" does not occur. Two additional ports are used for each
number dialed through the automated attendant, and all these ports are
in use until the transferred call is answered or the caller disconnects
from the message server. Customers should consider implementing
supervised transfers, or installing additional ports. Note that with
supervised transfers, callers are not provided with music on hold, but
are instead prompted to wait during the silence. The called party will
hear a "Connecting" prompt as he/she answers the call.

8.4 **When multiple PBX's are arranged in a QSIG network, care must
be taken to configure the QSIG tie trunks properly.** In order to
provide full feature functionality to all subscribers, the trunk group(s)
assigned to the QSIG tie trunks connecting all PBX's in the network
must match the configuration of the trunk group form (page 1 and 2 of
the form) assigned to the MAS QSIG trunks. An example of the trunk
group administration form is illustrated on the PBX programming
section of this document.

8.5 **Message Waiting Interrogation is a feature that allows the PBX to
request message waiting indicator status of subscribers' stations
from the MAS.** The following conditions will result in the PBX
requesting message waiting indicators status:
- **Switch reload.** 15 minutes after a switch reload, a message waiting
interrogation request will be sent to the MAS.

- **Interruption of service on a QSIG link.** 15 minutes after service is re-established on the QSIG link, a message waiting interrogation request is sent to the MAS.
- **Scheduled daily maintenance routine.** Once daily, during the scheduled maintenance period (usually around 1:00 A.M. on most switches), a message waiting interrogation request is sent to the MAS.

8.6 **MAS can support multiple Avaya/Tenovis PBX's** in a "centralized" voice mail arrangement only if all PBX's are connected using QSIG. If Avaya G3/MultiVantage PBX's uses DCS for networking, QSIG integration cannot provide full functionality to remote PBX subscribers. Please refer to Section 9.0 to support a centralized environment using DCS+.

When running MWI on your Voice Server you should setup a separate trunk group containing 2channels from one of your QSIG trunks, these channels should not be apart of any other trunk group. You should then create a new MWI port group containing these channels and make the relevant changes in MAS VMCS.

8.7 **Support for Transfer to QSIG Voice Mail feature.** In order to provide support for the Transfer to QSIG Voice Mail feature on your QSIG integrated MAS solution, you need to ensure the following criteria are met:

Your switch will need to be running Definity software R8 or later.

1. You will need to have the following features enabled on your switch:

    2. ISDN-PRI or ISDN-BRI

    3. QSIG Supplementary Services

    4. Transfer to QSIG Voice Mail

5. A Feature Access code for Transfer to QSIG Voice Mail, will need to be configured.

6. Your MAS Voice Server will need to be using the QSIG-MWI hunt group integration as described in this document.

Example on how the feature works:

Extension 7001 has voice mail but calls received are forwarded to extension 7002 rather than directly to voice mail.

Callers to 7001 are answered at 7002 but the caller wishes to leave a voice mail for the person at 7001.

The person at 7002 transfer the caller directly to the voice mail for 7001 by pressing the transfer button, then the code for transfer to voice mail (*8,*50, etc.), then presses transfer again.

The caller immediately hears the greeting of 7001 (no additional ringing) and can subsequently leave a message.

Note: For full details on how to configure and implement the Transfer to QSIG Voice Mail feature on your Avaya switch, please consult your Avaya Sales or Support representative.

8.8   **Possible reasons for QSIG Path Replacement failure**.When your QSIG Modular Messaging systems Auto Attendant, Caller Application or Find Me features are transferring a call, you will see a second channel in Port Monitor appear busy until the transfer has been completed. After the transfer has been completed you will see that both channels are now idle in Port Monitor, this shows that the QSIG Path Replacement feature has completed successfully.

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

However there are some switch configurations that will cause Path Replacement to fail, therefore your MM Server will stay bridge onto the transferred call, keeping two channels busy in Port Monitor. The following list of features can cause Path Replacement to fail:

Call Vector. A call that has experienced SS-CT (Supplementary Service Call Transfer) that terminated to a vector and received answer treatment can have its path replaced. This is allowed only after a true user answers the call so that vector processing is completed. A vector step of recorded announcement or wait listening to music could cause a CONNECT message to be sent back and make the far end think ANF-PR (Path Replacement Additional Network Feature) could take place. If the PR Propose is received while still in vector processing, the vectoring PBX will deny the ANF-PR attempt but will initiated its own attempt at ANF-PR when a user does answer the call.

Data Call Setup. ANF-PR platform will reject the ANF-PR invocation request if the old connection is a data call. ANF-PR may cause disruption in user information during switchover of the old connection to the new connection, so it will be undesirable to disrupt the data call. For a call where the Bearer Capability Class (BCC) or Information Transfer Capability, Octet 3 of Bearer Capability IE, indicates that the call is data call, ANF-PR shall not be allowed.

For a voice grade data and voice, PBX uses the BCC value or Information Transfer Capability value of "3.1 KHZ audio", so using the bearer capability information would not be enough to distinguish between a voice call and voice grade data call. PBX provides a feature "data pre-indication" which allows using the BCC of the data extension instead of the voice extension even though the call is originated using the voice extension. So, ANF-PR shall not be allowed on a call for which data pre-indication is activated.

Data Privacy. The "data privacy" feature protects analog data calls from being disrupted by the system's overriding or ringing features. For analog endpoints, which are used for data calls such as fax and data only, PBX provides the feature "data privacy". So, ANF-PR shall not be allowed if "data privacy" is active on the old connection.

Data Restriction. The "data restriction" feature protects analog data calls from being disrupted by the system's overriding or ringing features. For analog endpoints, which are used for data calls such as fax and data only, PBX provides the feature "data restriction". So, ANF-PR shall not be allowed if "data restriction" is active on the old connection.

Malicious Call Trace (MCT). While Malicious Call Trace (MCT) is active and if there is a trunk involved in the call, MCT feature does not allow the trunk resources to be released from the switch-side to facilitate the tracing activity. Also, a MCT controller on switch A may request a controller on switch B to continue tracing a call that was tandem through switch B by providing the trunk member id they wish to have traced. So, ANF-PR shall not be done while MCT is active on the call.

Restriction Features. *Class of Restriction (COR).* The restrictions placed on routing calls are in affect for ANF-PR. Any call that cannot be originated or terminated because of COR on a regularly dialed basis will not be originated or terminated when that call is made ON BEHALF OF that terminal by ANF-PR.

Voice Terminal Restrictions. Voice Terminal Restrictions for the reroute of an ANF-PR call will be enforced.

Inward. If a terminal is Inward restricted then that terminal would not be able to accept an incoming call. This would include a new path SETUP message. Therefore a Requesting PBX should not bother proposing ANFPR, since it is destined to fail.

Manual Terminating Line. If a terminal is Manual Terminating restricted then that terminal would not be able to accept an incoming call except from an attendant. Thus a new path SETUP would be denied. Therefore a Requesting PBX should not bother proposing ANF-PR, since it is destined to fail.

Origination. If a terminal is Origination restricted then that terminal would not be able to make an outgoing call. Thus originating a new path SETUP should be denied. Therefore a Cooperating PBX should reject the path replacement proposal/request.

Outward. If a station is outward restricted at the cooperating end of an ANF-PR call then no ANF-PR SETUP should be attempted and ANF-PR should fail. Any call that cannot be originated outward (because of COR) on a regularly dialed basis will not be allow to originate outward when that call is made ON BEHALF OF that terminal by ANF-PR.

Termination. If a terminal is "termination restricted" then that terminal is not be able to accept an incoming call. Thus an incoming new path SETUP would be denied. Therefore a Requesting PBX should not bother proposing ANF-PR, since it is destined to fail.

> ***TAC (Trunk Access Code).*** When an outgoing call is made using a TAC, or a call was extended by an attendant using DTGS (Direct Trunk Group Selection), the user has intentionally chosen a particular Trunk Group for the outgoing call. ANF-PR will not replace the path in this case.

8.9 The Avaya/Tenovis PBX does not support call queuing on QSIG trunks. Hence, calls cannot be queued to MAS ports. The user audible behavior is that during peak traffic, when all MAS ports are busy, a caller will hear a fast busy. They should hang up and try at a later time.

8.10 When configuring an N+1 MM environment the following changes should be made to the MAS Service in the services applet, all steps should be completed:

1. Double click the Monitor icon on the desktop.
2. Select Services
3. Locate the Message Application Service
4. Right click the Message Application Service and select properties from the menu.
5. Select the Recovery tab.
6. For First Failure select Run File.
7. Select the Browse button and locate the QSIGRecover file:
   \\Avaya_Support\Tools\QSIGRecover\QSIGRecover.exe
8. Enter the following in the Command Line Parameters box:
   If you have one E1 board in your MAS:
   /recover /boards 1
   If you have two E1 boards in your MAS:
   /recover /boards 2
   If you have three E1 boards in your MAS:
   /recover /boards 3
9. Check the Append fail count to end of command line checkbox.
10. Repeat steps 6 to 8 for Second Failure.
11. For Subsequent Failures select Reboot The Computer.
12. Select OK to save changes.
13. Select Run from the Start Menu
14. Enter cmd and select OK
15. At the command prompt navigate to the Avaya_Support\Registry_Keys folder.
16. Enter the following: stopdriversonshutdown.reg and press the return key.
    Note: This registry file will apply a change to the registry key to stop the Dialogic drivers when the MAS service is stopped.
17. Close the command prompt.

8.11 Call transfers may not display the Call ID to ringing phones. The Call ID is not provided until the subscriber answers the phone.

- This issue was resolved in MM 3.0 where the Calling Party Number (number only, not the name) is displayed.

- Starting with MM 5.1, both name and calling party number will be displayed on ringing phones. Please note, for name to be

The above information is provided by AVAYA Inc. as a guide. See disclaimer on page 1

displayed the PBX must send the MAS the Calling Name using the QSIG Name Identification Supplementary Services Protocol (ECMA-164).

CHANGE HISTORY		
Revision	Issue Date	Reason for Change
Version A	04/09/07	GA release
Version B	06/01/07	Updated Consideration 8.12. Reformatted section 8.0
Version C	03/08	Corrected Consideration 8.12
Version D	05/05/08	Updated to support MM 4.0
Version E	05/16/08	Removed Dialogic Driver release from Section 2.0
Version F	06/11/08	Added sidebar note in Section 5.0 detailing administration of trunk group and to leave out highest order timeslot/port.
Version G	2/02/09	Updated to support MM 5.0; Limit Requests for MWI changed in Section 6.0
Version H	02/12/09	Changed screen shot for VMSC and added sidebar in Section 6.0.
Version I	07/09	Updated to support MM 5.1; changed wording in note on sidebar for VMSC in Section 6.0; Added note regarding collocated PBX/MM on page 1
Version J	07/20/09	Updated Consideration 8.11 to reflect calling party number/name display on ringing phone and PBX requirements needed
Version K	01/19/10	Added note indicator to titles of Section 2.0 and 3.1; added corresponding note in sidebar; removed word "supported" in same sections for MAS releases and PBX Software releases.

AVAYA Inc.
1033 McCarthy Blvd.
Milpitas, CA 95035
(408) 577- 7000
http://www.avaya.com