Avaya Solution & Interoperability Test Lab

Application Notes for ASC Marathon Evolution Call Recording Solution with Avaya Communication Manager – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for ASC Marathon Evolution to successfully interoperate with Avaya Communication Manager 2.2.

Marathon Evolution is a Call Recording solution able to capture audio from Communication Manager using a variety of integration mechanisms.

Marathon Evolution uses Computer Telephony Integration (CTI) to extract call event information and supports passive trunk tapping and active station side recording.

An Avaya S8300 Media Server within an Avaya G350 Media Gateway running Avaya Communication Manager 2.2 was used as the hosting PBX. Features and functionality were validated and performance testing was conducted to verify operation under light load.

Information in these Application Notes has been obtained through compliance testing and additional technical discussions. Testing was conducted via the Developer*Connection* Program at the Avaya Solution and Interoperability Test Lab.

1. Introduction

These Application Notes describe the compliance-tested configuration using an ASC Marathon Evolution call recorder, an ASC CTI-Controller server, and an Avaya Communication Manager system.

Marathon Evolution supports passive trunk tapping as well as active station-side recording.

The solution as tested is shown below.

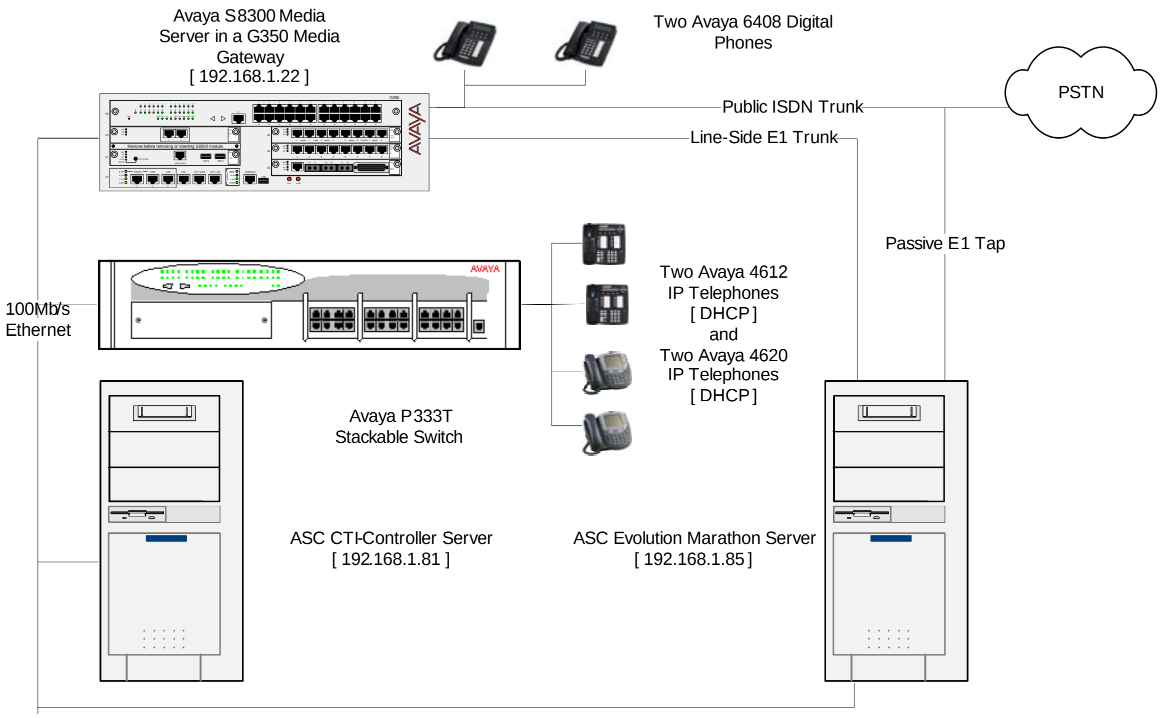

Figure 1: Tested Avaya Communication Manager System with ASC Marathon Evolution Server and ASC CTI-Controller Server

2. Equipment and Software Validated

The tested configuration is detailed below.

Equipment	Version Information
Avaya S8300 Media Server within an Avaya G350 Media Gateway	Communication Manager 2.2 (R012x.02.0.111.4)
Avaya MM710 T1/E1 Media Module	HW04 FW009
Avaya P333T Stackable Switch	V4.0.17
ASC Marathon Evolution	R4.0
ASC CTI-Controller	R2.0

3. Configure Avaya Communication Manager

Different features of Communication Manager need to be configured for the two recording modes to be tested. Please refer to the Administration Guide for Communication Manager for further details – Avaya Document 555-233-506 [1]. The specific options are detailed below.

3.1. Configure the CTI Link

Regardless of the mode of audio recording, a CTI link is required to provide call details for each recording. Since ASC provides a version of Avaya Computer Telephony within their CTI-Controller server, it is only necessary to define a CTI link. This requires that the co-resident DLG feature of Communication Manager be enabled as well as Computer Telephony Adjunct Links as shown:

Display System-Parameters Customer-Options (only the relevant page is shown)

```
                                 OPTIONAL FEATURES

    Abbreviated Dialing Enhanced List? y          Audible Message Waiting? y
        Access Security Gateway (ASG)? n              Authorization Codes? n
        Analog Trunk Incoming Call ID? n Backup Cluster Automatic Takeover? n
 A/D Grp/Sys List Dialing Start at 01? n                       CAS Branch? n
Answer Supervision by Call Classifier? n                         CAS Main? n
                                 ARS? y                Change COR by FAC? y
                 ARS/AAR Partitioning? y  Computer Telephony Adjunct Links? y
          ARS/AAR Dialing without FAC? y       Co-Res DEFINITY LAN Gateway? y
          ASAI Link Core Capabilities? n   Cvg Of Calls Redirected Off-net? y
          ASAI Link Plus Capabilities? n                      DCS (Basic)? n
       Async. Transfer Mode (ATM) PNC? n                DCS Call Coverage? n
  Async. Transfer Mode (ATM) Trunking? n               DCS with Rerouting? n
              ATM WAN Spare Processor? n
                                ATMS? n    Digital Loss Plan Modification? y
                  Attendant Vectoring? n                         DS1 MSP? n
                                                     DS1 Echo Cancellation? n
```

A CTI Link must be configured to provide the logical connection between Communication Manager and the external CTI Server. The **Type** field must be set to "ADJ-IP" for this configuration. The extension number must be valid in the dialplan of the PBX but is otherwise not important.

Display CTI-Link 1

```
                        Switch name: ASC_Avaya - CTI LINK
 CTI Link: 1
Extension: 2999
     Type: ADJ-IP
                                                                     COR: 1
     Name: Avaya CT Link

FEATURE OPTIONS

      Event Minimization? n        Special Character for Restricted Number? n
```

The Node-Names form must be configured with the name and IP Address of the CTI-controller server as shown below:

Display Node-Names

```
            Switch name: ASC_Avaya - NODE NAMES

Type     Name                 IP Address
IP       CTI                  192.168.1  .81
IP       default              0  .0  .0  .0
IP       procr                192.168.1  .22
```

The IP Services must be configured to enable the co-resident DLG option and to define a link to the CTI-Controller server as shown below:

Display IP Services

```
                       Switch name: ASC_Avaya - IP SERVICES
 Service     Enabled     Local        Local       Remote      Remote
  Type                   Node         Port        Node        Port
DLG           y      procr            5678

   CTI Link   Enabled     Client Name      Client Link   Client Status

      1          y      CTI                     1           in use
```

3.2. Configure A Trunk To Be Used With Passive Monitoring

No special configuration of the E1 trunk to allow passive monitoring is required. The details of the DS1, Signaling Group, and Trunk Group configuration are provided for information only and will vary based on customer needs. The tapped trunk was connected to a Euro-ISDN 30 service from British Telecom.

Display DS1 1v2

```
                    Switch name: ASC_Avaya - DS1 CIRCUIT PACK

            Location: 001V2                          Name: BT ISDN Link
            Bit Rate: 2.048                   Line Coding: hdb3

      Signaling Mode: isdn-pri
             Connect: network
   TN-C7 Long Timers? n                  Country Protocol: etsi
Interworking Message: PROGress           Protocol Version: b
Interface Companding: alaw                           CRC? y
           Idle Code: 01010100
                              DCP/Analog Bearer Capability: 3.1kHz

                                         T303 Timer(sec): 4


      Slip Detection? n                Near-end CSU Type: other
```

Display Signaling Group 91

```
                    Switch name: ASC_Avaya - SIGNALING GROUP

 Group Number: 91            Group Type: isdn-pri
                    Associated Signaling? y         Max number of NCA TSC: 0
                       Primary D-Channel: 001V216     Max number of CA TSC: 0
                                                  Trunk Group for NCA TSC: 91
       Trunk Group for Channel Selection: 91
          Supplementary Service Protocol: a         Network Call Transfer? n
```

Display Trunk Group 91

```
                    Switch name: ASC_Avaya - TRUNK GROUP

Group Number: 91                  Group Type: isdn          CDR Reports: y
  Group Name: BT ISDN Link               COR: 1        TN: 1        TAC: 791
   Direction: two-way       Outgoing Display? n        Carrier Medium: PRI/BRI
 Dial Access? y               Busy Threshold: 255      Night Service:
Queue Length: 0
Service Type: public-ntwrk         Auth Code? n            TestCall ITC: rest
                         Far End Test Line No:
TestCall BCC: 4
TRUNK PARAMETERS
         Codeset to Send Display: 6     Codeset to Send National IEs: 6
        Max Message Size to Send: 260   Charge Advice: none
  Supplementary Service Protocol: a     Digit Handling (in/out): enbloc/overlap

            Trunk Hunt: cyclical
                                                  Digital Loss Group: 13
Incoming Calling Number - Delete:     Insert:              Format:
              Bit Rate: 1200        Synchronization: async    Duplex: full
 Disconnect Supervision - In? y  Out? n
 Answer Supervision Timeout: 0
```

```
TRUNK FEATURES
          ACA Assignment? n            Measured: none      Wideband Support? n
                                                          Maintenance Tests? y
                              Data Restriction? n     NCA-TSC Trunk Member: 1
                                     Send Name: y      Send Calling Number: y
            Used for DCS? n
   Suppress # Outpulsing? n    Format: public
 Outgoing Channel ID Encoding: preferred     UUI IE Treatment: service-provider

                                                Replace Restricted Numbers? n
                                               Replace Unavailable Numbers? n
                                                     Send Connected Number: y
Network Call Redirection: none                   Hold/Unhold Notifications? y
             Send UUI IE? y                   Modify Tandem Calling Number? n
               Send UCID? n
 Send Codeset 6/7 LAI IE? y                         Ds1 Echo Cancellation? n

                                         US NI Delayed Calling Name Update? n

                     SBS? n  Network (Japan) Needs Connect Before Disconnect? n


                       INCOMING CALL HANDLING TREATMENT
 Service/       Called    Called        Del  Insert           Per Call  Night
 Feature         Len      Number                              CPN/BN    Serv
 public-ntwrk     6   5474              4    10

                                 TRUNK GROUP
                                      Administered Members (min/max):   1/30
GROUP MEMBER ASSIGNMENTS                  Total Administered Members:  30

       Port    Code Sfx Name        Night           Sig Grp
  1: 001V201  MM710                                   91
  2: 001V202  MM710                                   91
  3: 001V203  MM710                                   91
  4: 001V204  MM710                                   91
  5: 001V205  MM710                                   91
  6: 001V206  MM710                                   91
  7: 001V207  MM710                                   91
  8: 001V208  MM710                                   91
  9: 001V209  MM710                                   91
 10: 001V210  MM710                                   91
 11: 001V211  MM710                                   91
 12: 001V212  MM710                                   91
 13: 001V213  MM710                                   91
 14: 001V214  MM710                                   91
 15: 001V215  MM710                                   91


                                 TRUNK GROUP
                                      Administered Members (min/max):   1/30
GROUP MEMBER ASSIGNMENTS                  Total Administered Members:  30

       Port    Code Sfx Name        Night           Sig Grp
 16: 001V217  MM710                                   91
 17: 001V218  MM710                                   91
 18: 001V219  MM710                                   91
 19: 001V220  MM710                                   91
 20: 001V221  MM710                                   91
 21: 001V222  MM710                                   91
 22: 001V223  MM710                                   91
 23: 001V224  MM710                                   91
 24: 001V225  MM710                                   91
 25: 001V226  MM710                                   91
 26: 001V227  MM710                                   91
 27: 001V228  MM710                                   91
 28: 001V229  MM710                                   91
 29: 001V230  MM710                                   91
 30: 001V231  MM710                                   91
```

3.3. Configure the Active Line-Side E1 Trunk

Station-Side monitoring is provided using a Line-Side E1 trunk. This configuration allows up to 30 virtual extensions to be configured with the real hardware being at the remote end of an E1 link. In this configuration, the far-end is the ASC Marathon Evolution server. This allows the ASC server to record audio streams by using CTI to Single-Step Conference one of these virtual extensions.

A Line-Side E1 trunk does not have an associated Signaling Group or Trunk Group, but is simply administered as a DS1 card and extensions.

The DS1 configuration and a single extension (2001) are shown below. For the testing, extensions 2001 through 2030 were configured with only the extension number and port being different for each virtual device:

Display DS1 1v3

```
                   Switch name: ASC_Avaya - DS1 CIRCUIT PACK

          Location: 001V3                            Name: SO Monitor E1
          Bit Rate: 2.048                     Line Coding: hdb3

      Signaling Mode: CAS

        Interconnect: pbx                Country Protocol: 1

Interface Companding: alaw                           CRC? y
           Idle Code: 11111111





      Slip Detection? n                Near-end CSU Type: other
```

Display Station 2001

```
                        Switch name: ASC_Avaya - STATION

Extension: 2001                         Lock Messages? n          BCC: 0
     Type: DS1FD                         Security Code:            TN: 1
     Port: 001V301                     Coverage Path 1:           COR: 1
     Name: SiMo DS1 01                 Coverage Path 2:           COS: 1
                                       Hunt-to Station:         Tests? y

STATION OPTIONS
              Loss Group: 4
    Off Premises Station? y
       R Balance Network? n
```

4. Configure the Avaya P333T Ethernet Switch

No configuration of the P333T Ethernet Switch was required.

5. Configure the ASC CTI-Controller Server

This server consists of both an installed version of Avaya Computer Telephony and the ASC CTI-Controller software. The former is well defined in the Avaya documentation supplied with the server software. The latter operates as a slave process to the Marathon Evolution software. As such, it does not require any configuration.

6. Configure the ASC Marathon Evolution Server

The Marathon Evolution Server is supplied pre-installed with a copy of the Marathon Evolution software and suitable defaults. A Web interface is used to configure the solution.

The default values chosen for the majority of the application mean that little configuration is required for the recorder to perform the bulk recording used in the integration testing. In production environments, additional configuration may be required, reflecting unique customer requirements.

For the integration testing, the first 30 recording channels were configured for Active Station-Side recording and the second 30 channels were configured for Passive Trunk-Side recording.

Please refer to ASC's website for additional information including Web-Based Installation Training [3].

6.1. Configure the Station-Side Recording Channels

Channel 1 is shown in Figure 2 and Figure 3. Note that this is actually one screen, separated into two figures.

The "RecordStartMode" needs to be set to "HOST" meaning that the external CTI-Controller application is responsible for supplying event information indicating that a voice call should be recorded.

The input parameters "InputSource1" and "InputType1 must be configured correctly. A value of "PCM30" for InputSource1 identifies the physical E1 card to be used for recording. A value of "PRI_ACTIVE_TIMESLOT" for InputType1 means that the recorder is terminating an E1 trunk in an active fashion. The InputSource1 field must correspond to the timeslot for the channel. Hence for the example shown, which is channel 1, the value is also 1.

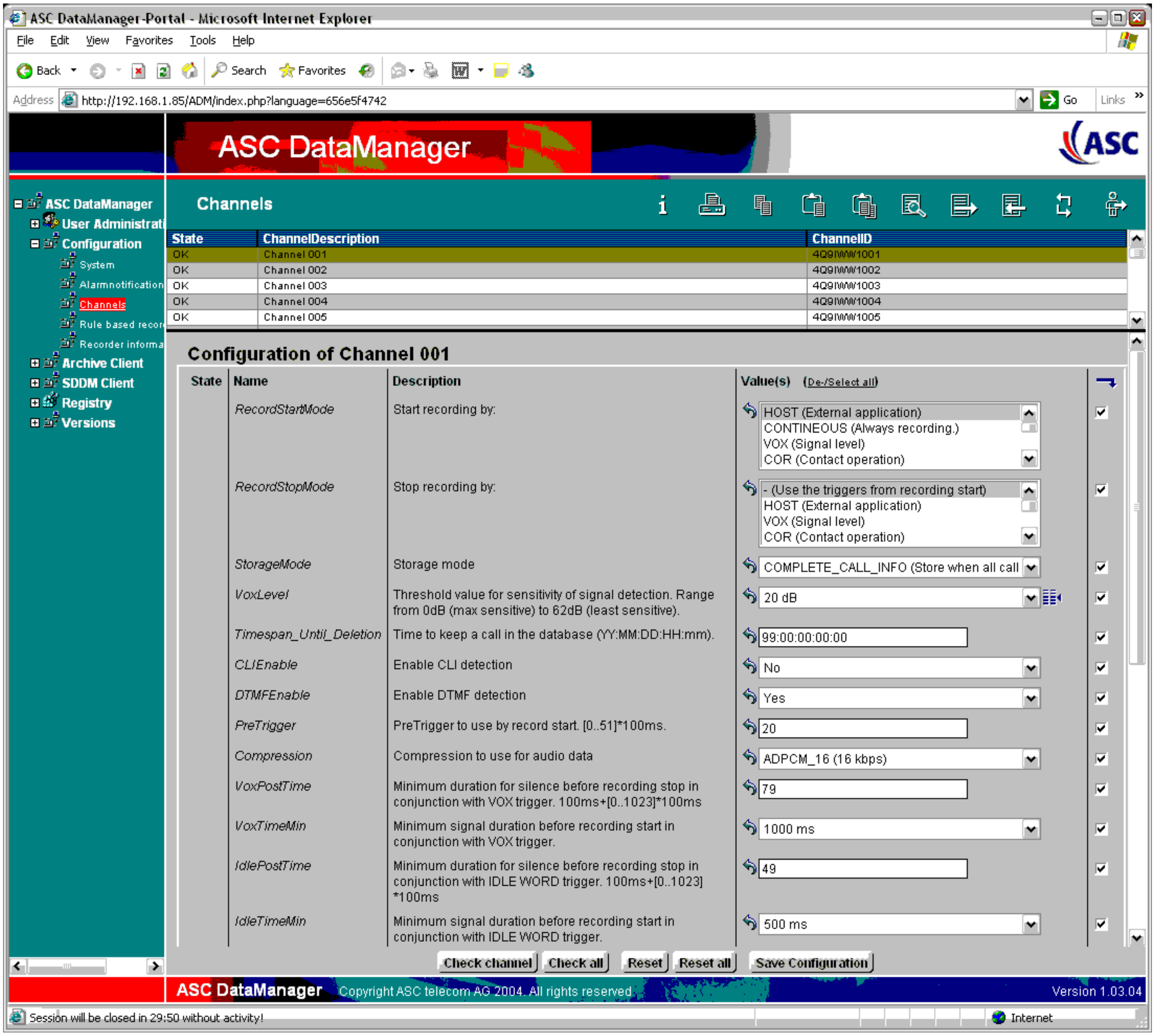

Figure 2: Configuring a Line-Side E1 Trunk Recording Channel – Part I

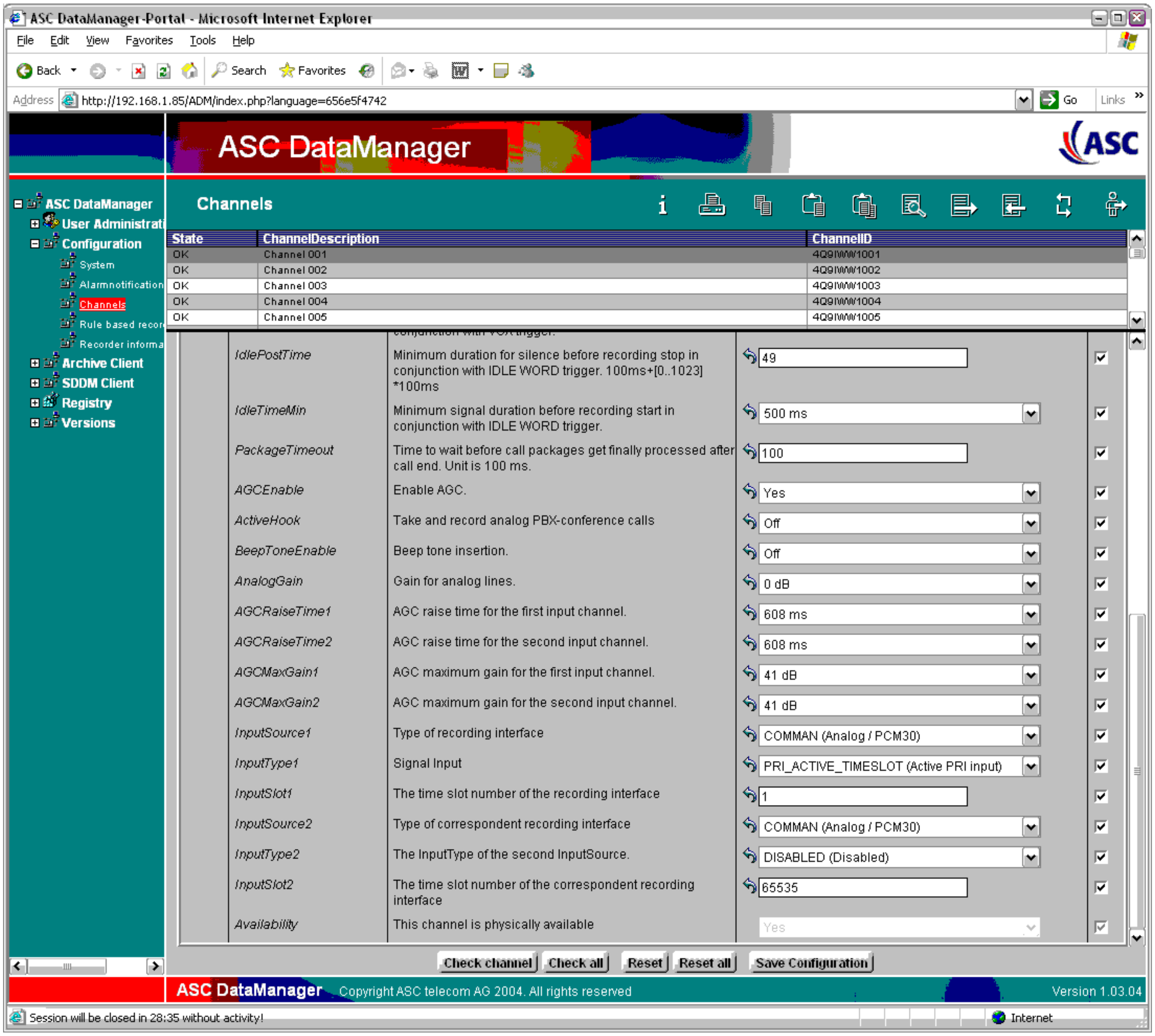

Figure 3: Configuring a Line-Side E1 Trunk Recording Channel – Part II

6.2. Configure the Passive Trunk Tapping Recording Channels

Channel 31 is shown in Figure 4 and Figure 5. Note that this is actually one screen, separated into two figures.

The “RecordStartMode” needs to be set to “HOST” meaning that the external CTI-Controller application is responsible for supplying event information indicating that a voice call should be recorded.

The input parameters “InputSource1” and “InputType1” must be configured correctly. A value of “DP_XXXX Passive” for InputSource1 means that a physical E1 card is used for recording, but that no signaling should be applied to this trunk. A value of “AUDIO_STREAM” for InputType1 means that the recorder is not terminating an E1 trunk in an active fashion, and therefore should not monitor the signaling. The InputSource1 field must correspond to the actual timeslot for the channel.

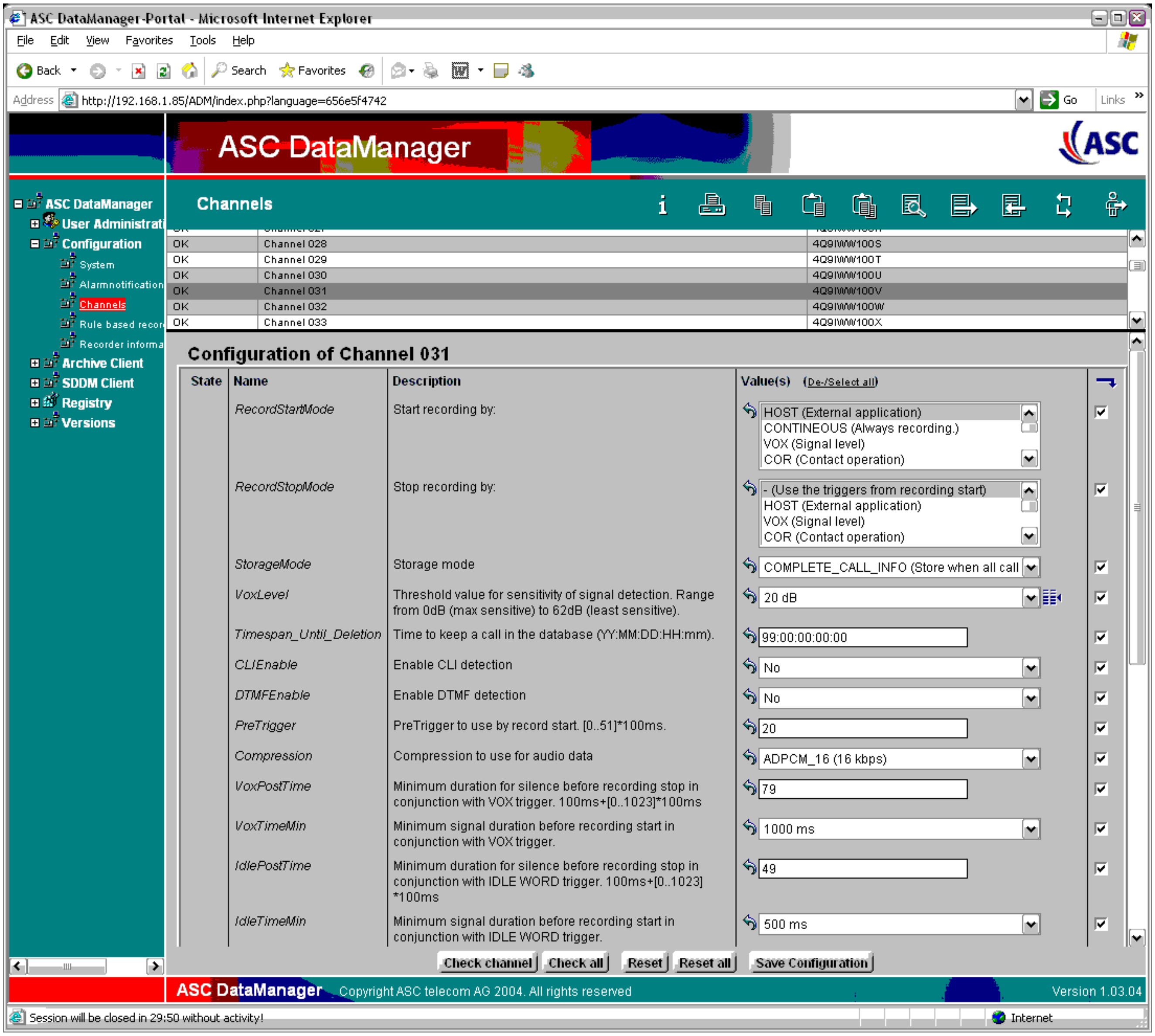

Figure 4: Configuring a Passive E1 Trunk Tapping Recording Channel – Part I

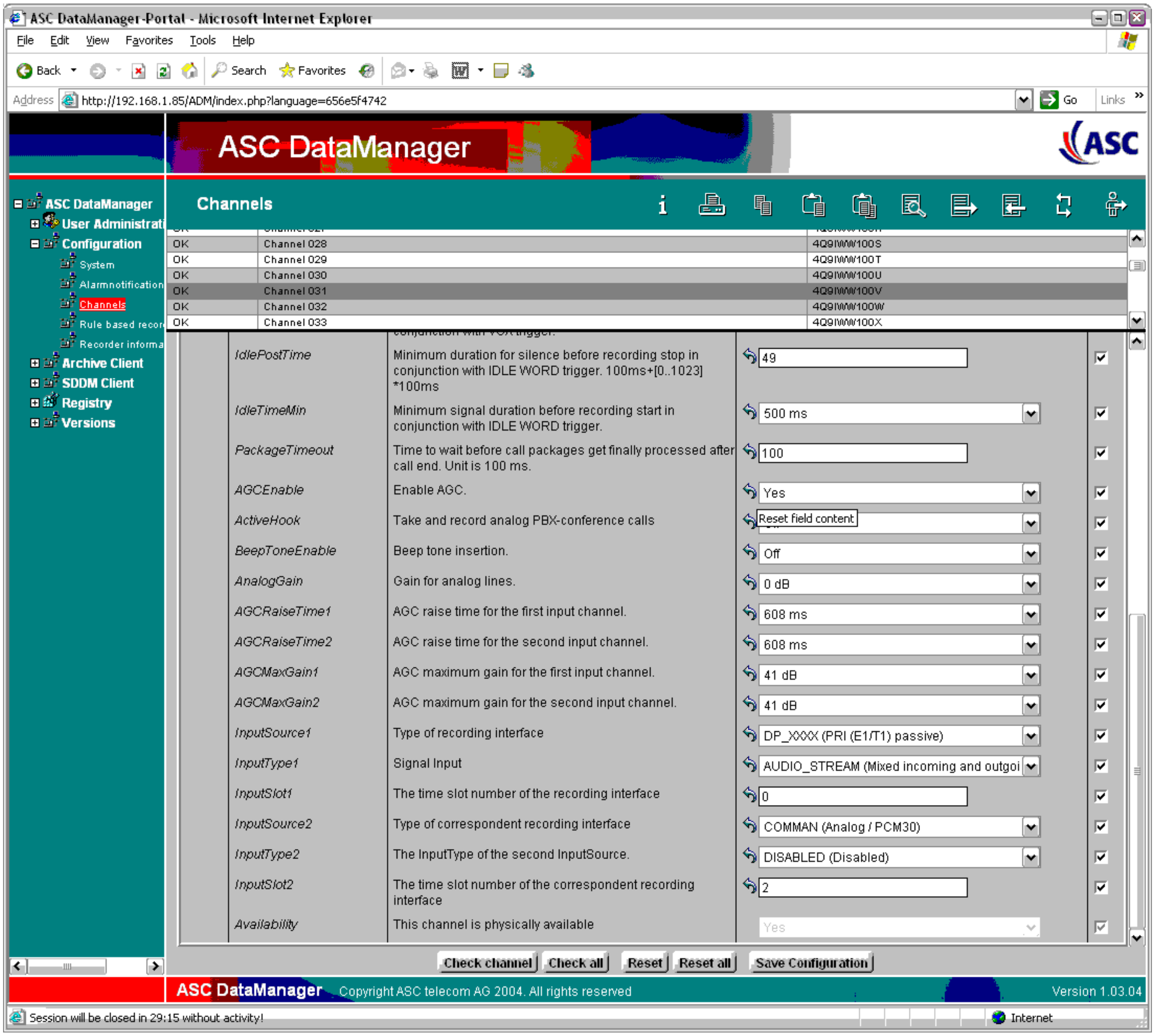

Figure 5: Configuring a Passive E1 Trunk Tapping Recording Channel – Part II

7. Interoperability Compliance Testing

7.1. General Test Approach

Testing included validation of correct operation of typical Voice Recording functions including Inbound, Outbound, Blind Transfer, Attended Transfer, and Conference calls. These tests were repeated for both tested recording modes. Light load testing and link integrity testing were also carried out.

7.2. Test Results

All tests passed.

8. Verification Steps

The following verification steps can be used to isolate problems in the field and to ensure that the CTI link is correctly passing data between the various components of the solution.

Since the CTI-Controller server contains an Avaya CT Server, the following can be used to verify the connectivity from the CTI-Controller server to Avaya Communication Manager.

1. Avaya CT is shipped with a simple TSAPI application called "TSTEST". This utility allows connection to a server and the origination of a call to verify CTI connectivity. There is also a small application called "TSSPY" which can be used to trace the messages to and from the Avaya CT Server. These two in conjunction are able to ensure that the CTI link is operating correctly. Hence the only required verification step for CTI is to use "TSTEST" to initiate a call from one known physical extension to another. Having made the CTI call, ensure that the physical devices are indeed trying to call each other, manually answer the call, and then use "TSTEST" to clear the call.
2. ASC has an Error Manager, which monitors the status of all of the configured trunks. This will alarm if any one is reporting a failure. This can be easily used to validate physical connectivity.
3. The status of the Line-Side E1 extensions, if this recording mode is being used, can be tested from Communication Manager as with a conventional station. If the status is "disconnected", then the E1 trunk is not operating correctly. The "Test DS1 xxxx" command can be used to check that the DS1 card is connected correctly. The first test is physical connectivity. Please refer to the Avaya Communication Manager manuals for details of other error messages that may be displayed when using this command.

9. Support

If technical support is required for the ASC Evolution Marathon solution, then please contact their Technical Support Hotline:

Email: hotline@asc.de

10. Conclusion

These Application Notes describe the configuration steps required for ASC Marathon Evolution to successfully interoperate with Avaya Communication Manager 2.2. An Avaya S8300 Media Server within an Avaya G350 Media Gateway running Avaya Communication Manager 2.2 was used as the hosting PBX. Features and functionality were validated and performance testing was conducted in order to verify operation under light load. The configuration described in these Application Notes has been successfully compliance tested.

11. Additional References

[1] Administrators Guide for Communication Manager (Doc ID: 555-233-506) can be found at http://support.avaya.com.
[2] Installation Guide for Avaya Computer Telephony can also be found at http://support.avaya.com.
[3] Additional Product Information can be obtained from ASC's website at http://www.asctelecom.com/english/index_e.html including Web-based installation training.

Please e-mail any questions or comments pertaining to these Application Notes along with the full title name and filename, located in the lower right corner, directly to the Avaya Developer*Connection* Program at devconnect@avaya.com.