



Avaya Solution & Interoperability Test Lab

Application Notes for TISL Eventra V3 with Avaya Communication Manager – Issue 1.0

Abstract

These Application Notes describe the configuration steps required in order for TISL Eventra to successfully interoperate with Avaya Communication Manager.

An Avaya S8700 Media Server with an Avaya G600 Media Gateway running Communication Manager was used as the hosting PBX. Features and functionality were validated and performance testing was conducted in order to verify operation under light load.

Information in these notes has been obtained through compliance testing and additional technical discussions. Testing was conducted via the Developer*Connection* Program at the Avaya Solution Development Lab in Guildford, England.

1. Introduction

These Application Notes describe the compliance-tested configuration using a TISL Eventra Server and Avaya Communication Manager. They address the external call recording capability of Communication Manager.

Eventra supports Station-Side recording using both Single-Step Conference with analogue trunks and passive RTP capture, as well as passive Trunk-Side recording. All three modes were tested with the configuration shown below.

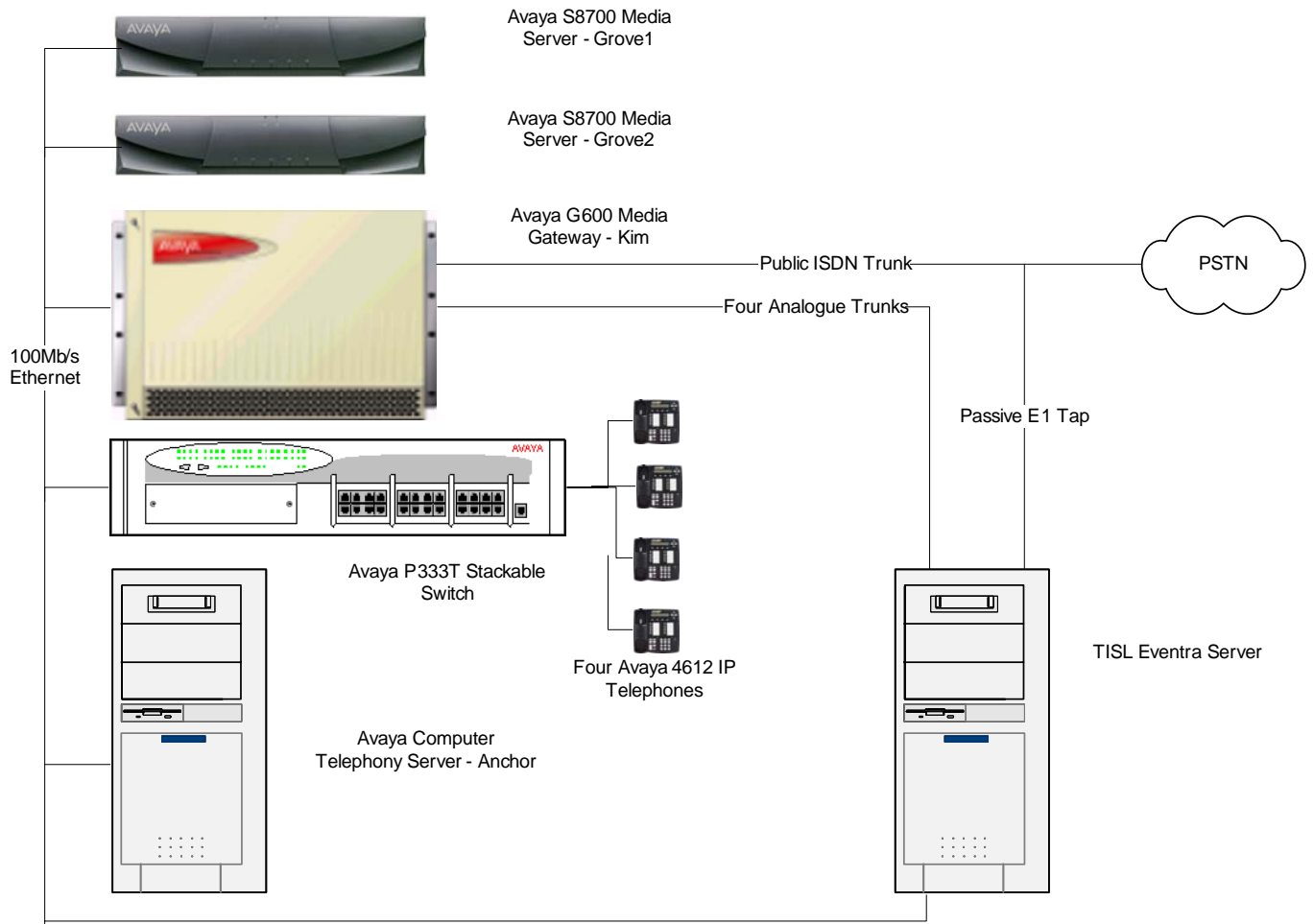


Figure 1: Tested Avaya Communication Manager System with Eventra Server

2. Equipment and Software Validated

Equipment	Software
Avaya S8700 Media Server	2.1
Avaya G600 Media Gateway	N/A
Avaya Computer Telephony Server	V1.3
Avaya P333T Stackable Switch	V4.0.17
Avaya 4612 IP Telephones	R1.8
TISL Eventra Server	R3

3. Configure Avaya Communication Manager

Different features of Avaya Communication Manager need to be configured for each of the three recording modes to be tested. The specific options are detailed below.

3.1. Passive Trunk-Side Recording

By definition, no specific configuration is required within Avaya Communication Manager, since this is intended to be used to monitor an existing and active trunk. However, for completeness, the definition of the passively tapped trunk is included.

There are three main configuration elements for a trunk – DS1 configuration, Signaling Group, and Trunk Group. All three screenshots are shown below:

Display DS1 2A07

```
Voice System name: Grove - DS1 CIRCUIT PACK

Location: 02A07                               Name: BT 01483 5474xx
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? y                             Near-end CSU Type: other
```

Display Signaling Group 91

```
Voice System name: Grove - SIGNALING GROUP

Group Number: 91                               Group Type: isdn-pri
Associated Signaling? y                       Max number of NCA TSC: 0
Primary D-Channel: 02A0716                   Max number of CA TSC: 0
Trunk Group for Channel Selection: 91         Trunk Group for NCA TSC: 91
Supplementary Service Protocol: a            X-Mobility/Wireless Type: NONE
```

Display Trunk Group 91

```
Voice System name: Grove - TRUNK GROUP

Group Number: 91          Group Type: isdn          CDR Reports: r
Group Name: BT 01483 5474xx/5476xx  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: both      Wideband Support? n
                          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: shared
                          Maximum Size of UUI IE Contents: 128
                          Replace Restricted Numbers? n
                          Replace Unavailable Numbers? n
                          Send Connected Number: y
                          Modify Tandem Calling Number? n
  Send UUI IE? y
  Send UCID? n              BSR Reply-best DISC Cause Value: 31
Send Codeset 6/7 LAI IE? y          Dsl Echo Cancellation? n

                          US NI Delayed Calling Name Update? n

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

                          Administered Members (min/max): 1/4
GROUP MEMBER ASSIGNMENTS          Total Administered Members: 4

  Port   Code Sfx Name      Night      Sig Grp
1: 02A0701  TN2464          Night      91
2: 02A0702  TN2464          Night      91
3: 02A0703  TN2464          Night      91
4: 02A0704  TN2464          Night      91
```

3.2. Single-Step Conference

This mode uses analogue extensions and CTI to create conferences on demand to capture audio. The only elements that need to be administered on Avaya Communication Manager are the analogue extensions to be used to capture the audio. The defaults for an analogue extension were used, except that Adjunct Supervision was enabled as shown below.

```

Display Station 18021
Voice System name: Grove - STATION

Extension: 18021          Lock Messages? n          BCC: 0
Type: 2500              Security Code:            TN: 1
Port: 02A0309          Coverage Path 1:         COR: 1
Name: Call Port 1      Coverage Path 2:         COS: 1
                        Hunt-to Station:         Tests? y

STATION OPTIONS
Loss Group: 1           Message Waiting Indicator: none
Off Premises Station? n

FEATURE OPTIONS
Adjunct Supervision? y

Line Appearance: call-appr

```

3.3. Passive RTP Capture

By definition, no specific configuration is required within Avaya Communication Manager, since this is intended to be used to monitor an existing and active set of IP Extensions. However, it is essential that the RTP streams to be captured are made available to the Eventra server. Obviously it cannot capture a stream, which it cannot see. This is achieved using two configuration options – the first is to disable call shuffling, which is described here, the second is to set up a port mirror which is described in section 4.

Call shuffling is a technique allowing IP endpoints to set up a direct media stream rather than using the Media Processor card for each individual media stream. This has many advantages including reducing the load on the Media Processor and other network resources. Unfortunately it means that the media streams would then no longer be visible to the Eventra server. For this reason, it is essential that Call Shuffling be disabled for all extensions that are required to be captured. Avaya Communication Manager supports this feature on a PBX-wide, Network Region, and individual station basis – the logic being that all three need to be enabled for a call to be shuffled. Which of the three techniques is used depends greatly on aspects which are beyond the scope of this document. For the purposes of testing, the PBX-wide option had call shuffling disabled.

This is configured on the last part of the “System-Options Features” administration form – an example is shown below:

Display System Parameters Features (only the last page is displayed)

```

IP PARAMETERS
Direct IP-IP Audio Connections? n
IP Audio Hairpinning? y
RUSSIAN MULTI-FREQUENCY PACKET SIGNALING
Re-try? n
T2 (Backward Signal) Activation Timer (secs): 20

```

4. Configure the Avaya P333T Stackable Switch

No special configuration of this device was either performed or is necessary in this configuration. However, it is necessary to configure a port mirror to allow all data destined for the Media Processors in the port network called “Kim” to be accessible to the Eventra server. This is very simple to configure on an Avaya P333T Stackable Switch, but the exact details depend greatly on the actual configuration and hardware used. Other Data networking vendors typically support this functionality but may use different terms and have very different administration.

A screen shot has been included but please note that this configuration is very specific to the lab environment. This configuration will mirror all traffic on Port 24 (which is the uplink port from this hub to the main lab network) to Port 23 which is connected to the TISL Eventra Server. As such, all data packets on this network segment will be available to the Eventra server.

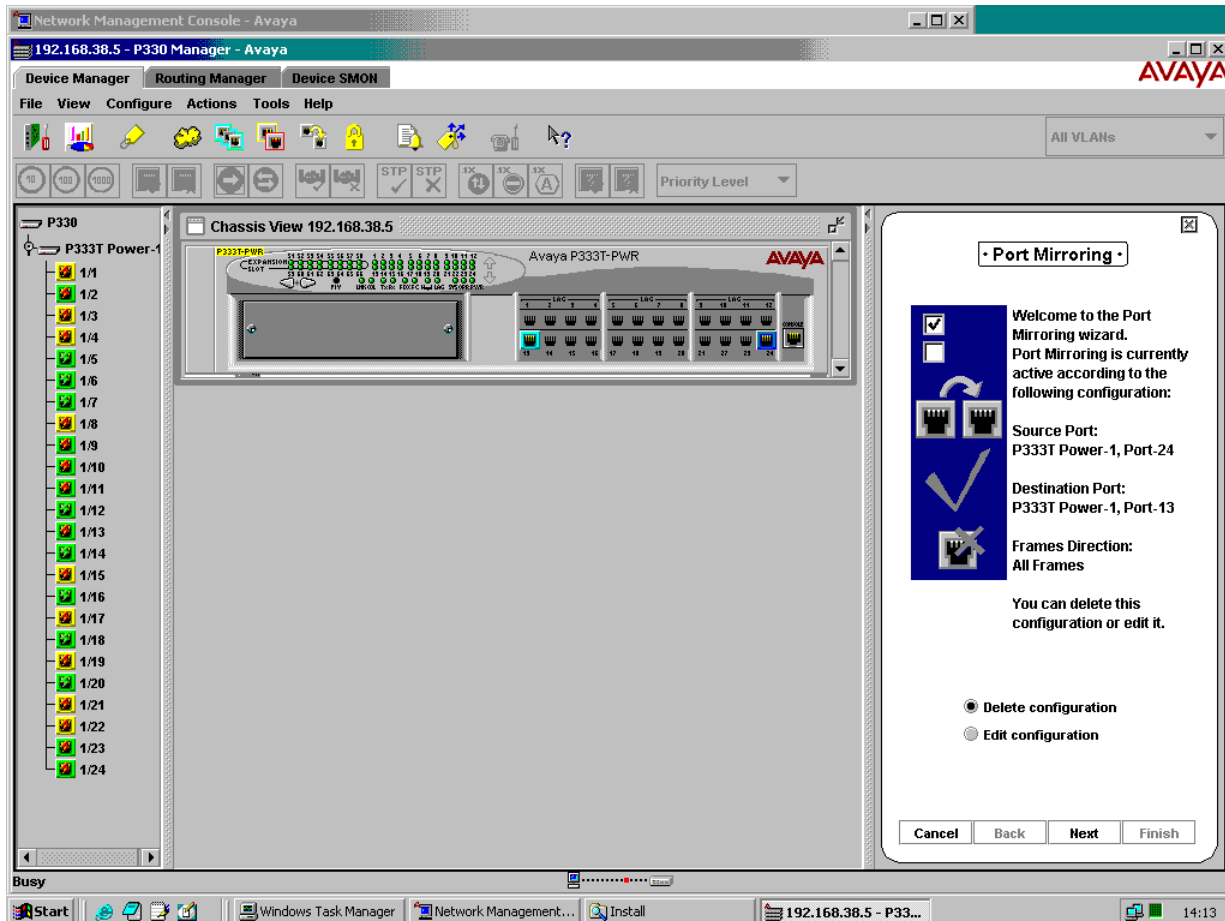


Figure 2: Configure a Port Mirror

5. Configure the TISL Eventra Server

The Eventra Server required slightly different configuration options for each of the three recording modes.

However, the CTI configuration to access the Avaya Computer Telephony server was consistent for all three modes. The contents of the Avaya defined “tslib.ini” file are shown below:

```
[Telephony Servers]
192.168.38.10=450
```

5.1. Passive Trunk-Side Recording

This mode of recording required a simple addition to the Eventra database to define the recorded trunks and a modification to the “TISLCTI.CFG” file to specify trunk recording. Both are shown below:

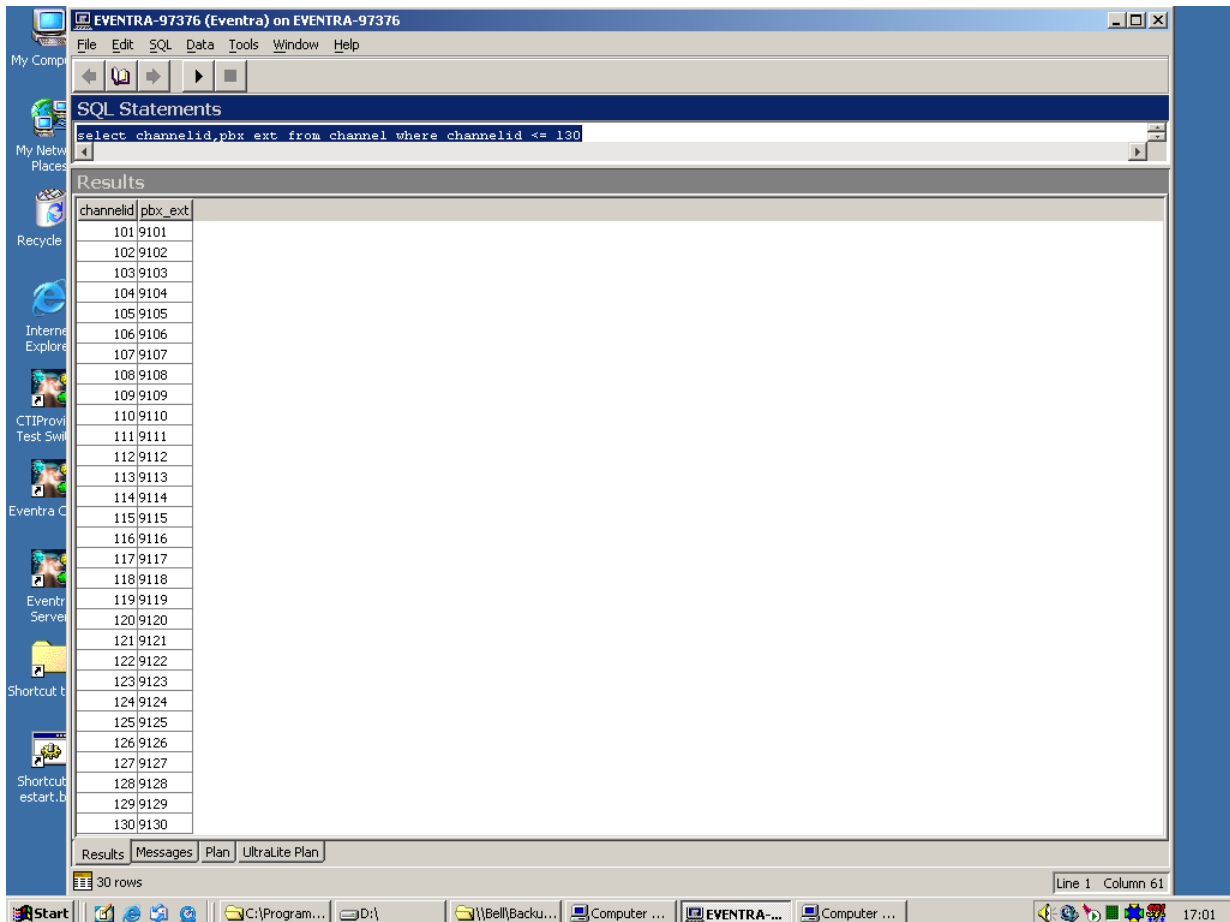


Figure 3: Eventra Server Trunk Configuration Screen

Please note below that the stations to be monitored using the CTI link are specified at the end of the file. This is a dynamic configuration file, and will be re-read by Eventra if any changes are made – i.e. changes can be made and be effective without having to re-start the Eventra server.

```
[SI]
Test=N
Record Internal=N
Record Extension=N
Record Trunk=Y
[TSAPI]
#testNoAPI=Y

Server=AVAYA#GROVE#CSTA#ANCHOR

Login=tsuser
Pwd=tsuser

silentMonitor=N

#recordInternal = Y
startOnConfirm = N
startOnEstablish = N
filterEvents=N

delayOnStart=750 //wait in ms between sending silentmon and going off-hook
delayBeforeStart=00 //wait in ms before starting silentmon after tfer/conf?? 0=don't start

[LOG]
logRawData=N

[MONITOR]
eventra = 10014,10016
```

5.2. Single-Step Conference

This mode of recording required a simple addition to the Eventra database to define the recorded analogue stations and a modification to the “TISLCTI.CFG” file to specify station side recording. Both are shown below:

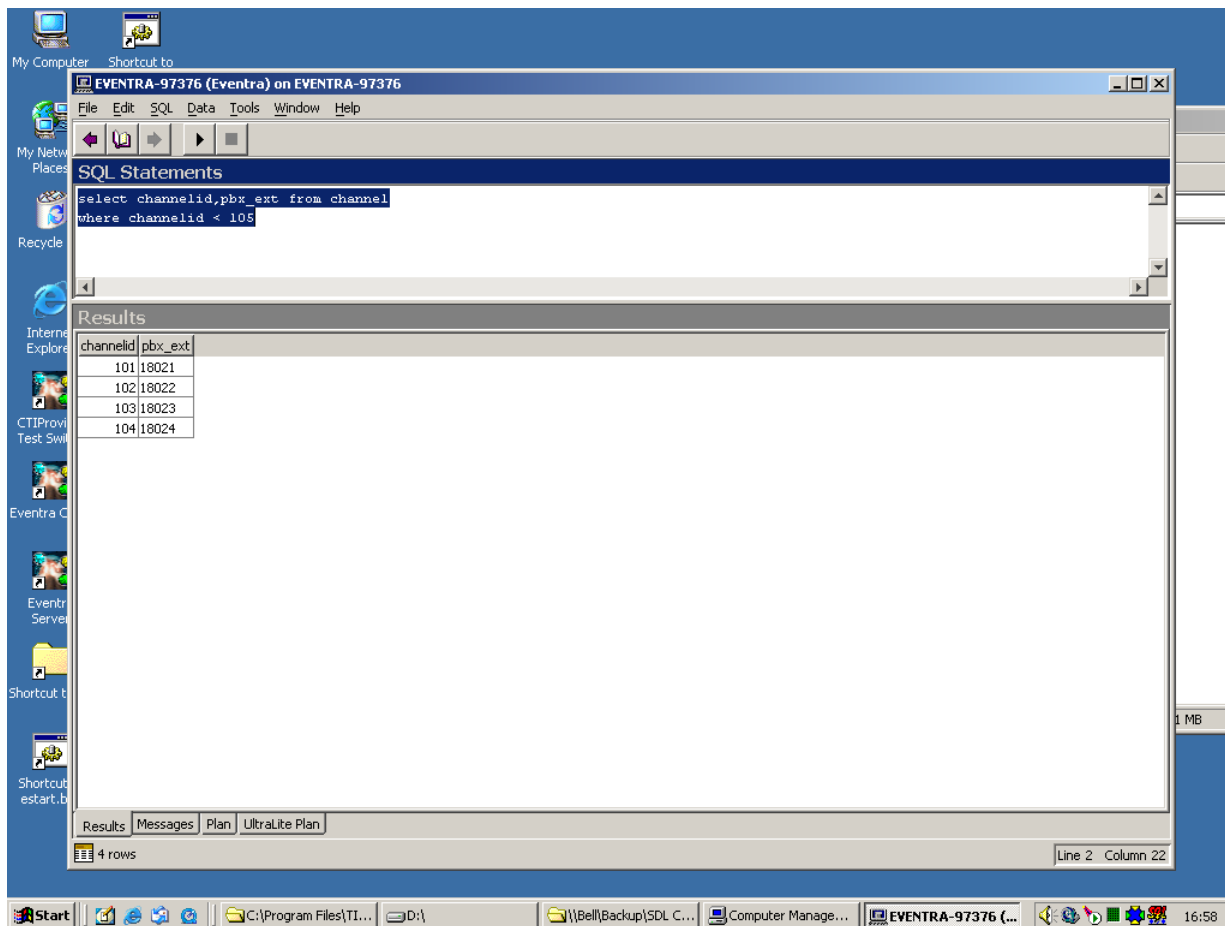


Figure 4: Eventra Server Analogue Link Configuration Screen

Please note below that the stations to be monitored using the CTI link are specified at the end of the file. This is a dynamic configuration file, and will be re-read by Eventra if any changes are made – i.e. changes can be made and be effective without having to re-start the Eventra server.

```
[SI]
Test=N
Record Internal=Y
Record Extension=Y
Record Trunk=N
[TSAPI]
#testNoAPI=Y

Server=AVAYA#GROVE#CSTA#ANCHOR

Login=tsuser
Pwd=tsuser

silentMonitor=Y

#recordInternal = Y
startOnConfirm = N
startOnEstablish = N
filterEvents=N

delayOnStart=750 //wait in ms between sending silentmon and going off-hook
delayBeforeStart=00 //wait in ms before starting silentmon after tfer/conf?? 0=don't start
```

```
[LOG]
logRawData=N
```

```
[MONITOR]
eventra = 10014,10016
```

5.3. Passive VoIP/RTP Recording

This mode of recording required a modification to the “TISLCTI.CFG” file to specify VoIP recording. This is shown below:

Please note below that the stations to be monitored using the CTI link are specified at the end of the file. This is a dynamic configuration file, and will be re-read by Eventra if any changes are made – i.e. changes can be made and be effective without having to re-start the Eventra server.

```
[SI]
Test=N
Record Internal=Y
Record Extension=Y
Record Trunk=N
[TSAPI]
#testNoAPI=Y

Server=AVAYA#GROVE#CSTA#ANCHOR

Login=tsuser
Pwd=tsuser

silentMonitor=N

#recordInternal = Y
startOnConfirm = N
startOnEstablish = N
filterEvents=N

delayOnStart=750 //wait in ms between sending silentmon and going off-hook
delayBeforeStart=00 //wait in ms before starting silentmon after tfer/conf?? 0=don't start

isVoIP=y

[LOG]
logRawData=N

[MONITOR]
eventra = 10014,10016
```

6. Interoperability Compliance Testing

6.1. General Test Approach

Testing included validation of correct operation of typical Voice Recording functions including Inbound, Outbound, Blind Transfer, Attended Transfer, and Conference calls. Light load testing and link integrity testing was also carried out.

6.2. Test Results

All tests passed.

7. 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. Please note that it is a requirement of the Compliance Test that a fully operation Avaya Computer Telephony server be provided prior to testing. As such, the operation of the Avaya Computer Telephony server is assumed to be in service. The section verifies the connectivity from this server to the Eventra Server.

1. Avaya Computer Telephony is shipped with a very simple TSAPI application called “TSTEST”. Whilst this utility only allows connection to a server and the origination of a single call, it is invaluable in verifying CTI connectivity. There is also a small application called “TSSPY” which can be used to trace the messages to and from the Avaya Computer Telephony 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. Eventra has a CTI Message tracing capability to aid fault diagnosis in the field. Generate a simple inbound test call to a monitored station and ensure that the Message Trace contains a set of events related to the test call. This message trace also contains information as to whether the call should be stored or not.

8. Support

If technical support is required for the TISL Eventra server, then please contact TISL Technical Support.

Email: support@tisl.com

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9. Conclusion

These Application Notes describe the configuration steps required in order for TISL Eventra to successfully interoperate with Avaya Communication Manager. An Avaya S8700 Media Server with an Avaya G600 Media Gateway running Avaya Communication Manager 2.1 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.

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