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Avaya Solution & Interoperability Test Lab

Application Notes for FCS Gateway with Avaya Aura® Communication Manager R8.0 - Issue 1.0

Abstract

These Application Notes describe the procedures for configuring the FCS Gateway application to interoperate with Avaya Aura® Communication Manager R8.0. FCS Gateway is a Windows-based integrated billing and interfacing solution that supports all major PMS and PABX (including Avaya) systems. FCS Gateway is also an Integrated Billing and Interface System for automated cost control and management of guest telephony and service usage.

Readers should pay attention to **Section 2**, in particular the scope of testing as outlined in **Section 2.1** as well as any observations noted in **Section 2.2**, to ensure that their own use cases are adequately covered by this scope and results.

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

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Solution & Interoperability Test Lab Application Notes
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CM8-FCS_GW

1. Introduction

These Application Notes describe the procedures for configuring FCS Gateway to interoperate with Avaya Aura® Communication Manager. FCS Gateway is a Windows-based integrated billing and interfacing solution that supports all major PMS and PABX (including Avaya) systems. FCS Gateway is also an Integrated Billing and Interface System for automated cost control and management of guest telephony and service usage.

FCS Gateway provides a real-time multitasking interface between Avaya Aura® Communication Manager and a hotel's 3rd party Property Management System (PMS). In addition to functioning as a call charge and billing system that manages the costs of telephony and service usage, FCS Gateway supports standard Hospitality feature requests to/from a PMS (guest room check-in/check-out/moves, Do Not Disturb (DND), Automatic Wakeup (AWU) through FCS Voice/PMS, Message Waiting Lamp (MWL) control, and Housekeeping/Room Status changes. The call charge and billing functionality is facilitated by a Call Detail Recording (CDR) interface to Avaya Aura® Communication Manager, while the Hospitality features are enabled by a PMS data link to Avaya Aura® Communication Manager.

When notified of a guest room check-in, FCS Gateway removes outbound call restrictions on the guest room extension and changes that extension's Hospitality Status to "occupied." Conversely, when notified of a guest room check-out, FCS Gateway restricts outbound calls on the guest room extension and sets its Hospitality Status to "Vacant".

2. General Test Approach and Test Results

Feature functionality testing was performed manually. Inbound calls were made to the Avaya IP Telephones (i.e., the guest telephones) over simulated PSTN trunks, as well as from other local extensions (analog, digital, and IP Telephone). A simulated PMS application was used to launch changes to telephone message waiting lamps and phone privileges during room check-in / check-out / move requests, receive room status updates, and activate/deactivate DND.

DevConnect Compliance Testing is conducted jointly by Avaya and DevConnect members. The jointly-defined test plan focuses on exercising APIs and/or standards-based interfaces pertinent to the interoperability of the tested products and their functionalities. DevConnect Compliance Testing is not intended to substitute full product performance or feature testing performed by DevConnect members, nor is it to be construed as an endorsement by Avaya of the suitability or completeness of a DevConnect member's solution.

Avaya recommends our customers implement Avaya solutions using appropriate security and encryption capabilities enabled by our products. The testing referenced in these DevConnect Application Notes included the enablement of supported encryption capabilities in the Avaya products. Readers should consult the appropriate Avaya product documentation for further information regarding security and encryption capabilities supported by those Avaya products.

Support for these security and encryption capabilities in any non-Avaya solution component is the responsibility of each individual vendor. Readers should consult the appropriate vendor-supplied product documentation for more information regarding those products.

For the testing associated with these Application Notes, the interface between Avaya systems and the FCS Gateway did not include use of any specific encryption features as requested by FCS.

2.1. Interoperability compliance testing

Interoperability compliance testing focused on the ability of FCS Gateway to work with Avaya Aura® Communication Manager. FCS Gateway features and capabilities that were verified included the following: receipt and processing of Call Detail Records, check-in/check-out/room change for guest extensions, receipt of Housekeeping/Room Status changes initiated at guest or non-guest telephones and forwarding to a simulated Property Management System, MWL activation for incoming voicemail, and DND activation/deactivation.

2.2. Test Results

All executed test cases were completed successfully.

2.3. Support

For technical support on FCS Gateway, contact FCS Global Customer Support at:

- Phone: +63-2-672-7860
- Email: helpdesk.fcs@planet1world.com
- Web: http://www.fcscs.com/support/

3. Reference Configuration

The configuration used in performing compliance testing of FCS Gateway is shown in **Figure 1**. It shows a network consisting primarily of an Avaya Aura® Communication Manager in Duplex mode with an Avaya G430 Media Gateway, Avaya Aura® Media Server, a server with FCS Gateway installed with PMS Simulator, and a pair of phones for each guest room, which are either analog or digital with an Avaya IP Telephone. Additional utility phones are setup to function as Operator, Admin and Front Desk. The CDR and PMS data links from FCS Gateway are carried over the IP network and terminated in Avaya Aura® Communication Manager as IP services.
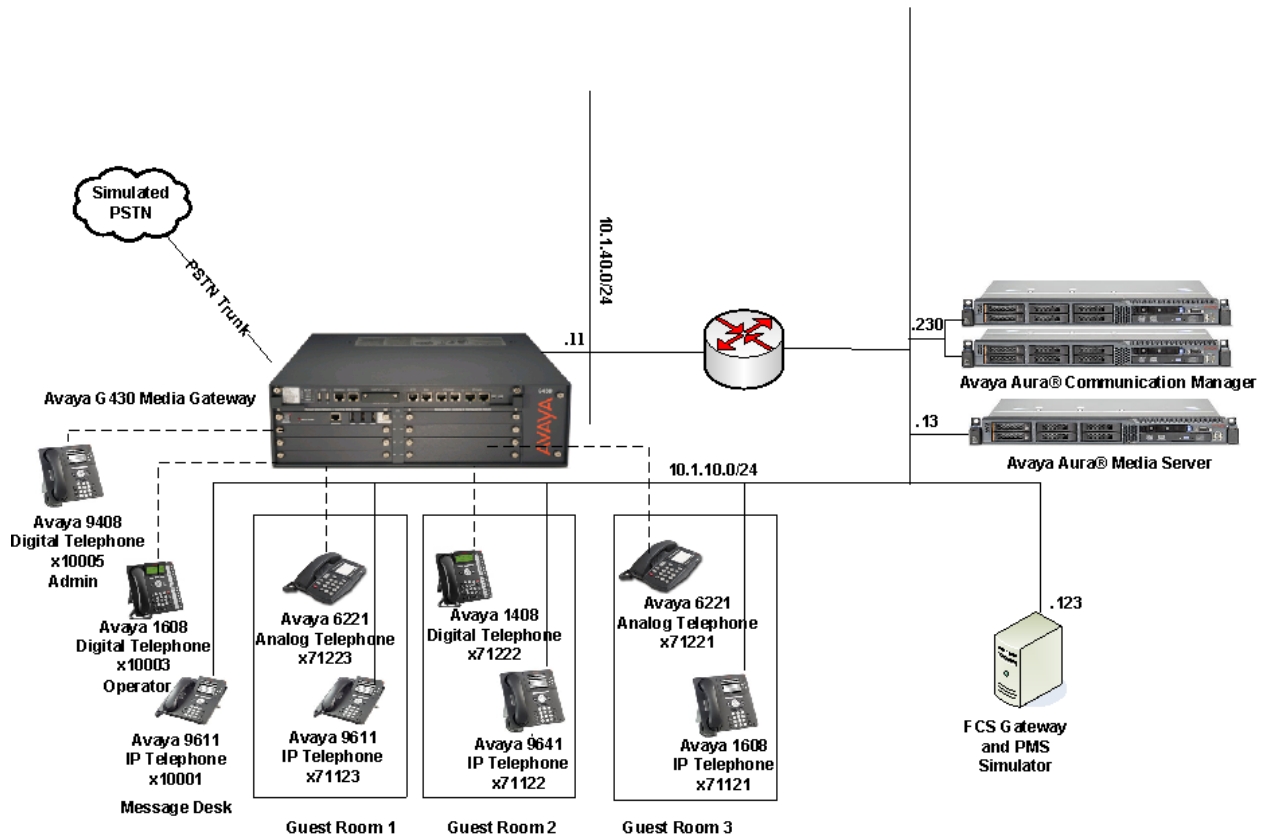

Figure 1: Sample Test Configuration

4. Equipment and Software Validated

The following equipment and software were used for the sample configuration provided:

Equipment/Software	Release Version
Avaya Aura® Communication Manager	R8.0 (R018x.00.0.822.0 – 24796)
Avaya G430 Media Gateway • MGP	 40.10.0
Avaya Aura® Media Server	8.0.0.150
Avaya 96x1 IP Telephone (H.323)	6.6604
Avaya 16xx IP Telephone (H.323)	6.6604
Avaya 14xx Digital Telephone	R4 SP10
Avaya 94xx Digital Telephone	2.0 SP4 (R15)
Analog Telephone	-
FCS Gateway Server on Windows Server 2012 R2	2.0

Note: The Avaya Aura® servers including FCS Gateway server used in the test configuration and shown on the table were deployed on a virtualized environment. These Avaya components ran as virtual machines on VMware® (ESXi 6.X) platforms.

5. Configure Avaya Aura® Communication Manager

This section details the steps required to configure Avaya Aura® Communication Manager to interoperate with FCS Gateway. These Application Notes assume the Avaya Media Gateway (including circuit packs) has already been administered. Please refer to **[2]** for additional details.

The commands listed in this section were issued at the Avaya System Access Terminal (SAT) screen. For all steps where data are modified, submit the completed administration form for the changes to take effect.

5.1. Turn On Special Applications

Special-applications feature is required for this compliance testing in order to expand the numbering and character names for PMS from 5-digit extensions and 15-character names to 7-digit extensions and 27-character names. Enter **change system-parameters special-applications** and in page 5, set the parameter **(SA8662) – Expanded PMS Name and Number** from **n→y**.

```
change system-parameters special-applications           Page   5 of  10
                        SPECIAL APPLICATIONS



                            (SA8652) - No Hold Consult? n
   (SA8654) - Crisis Alert Call Monitoring and Recording? n
          (SA8661) - Increased Automatic Wakeup Calls? n
              (SA8662) - Expanded PMS Name & Number? y
                          (SA8684) - PMS Wakeup Message? n
   (SA8693) - Connectivity Check for Direct IP Shuffling? n

             (SA8697) - 3rd Party H.323 Endpoint Support? y
 (SA8701) - Net Region Support H.323 Endpoints Behind ALG? n
               (SA8702) - CDR Enhancements for Network? n
        (SA8731) - Block Outgoing Bridged Call Display? n
               (SA8734) - Enhanced Extension Display? n
        (SA8741) - CDR Identifier for IP Station Calls? n
          (SA8744) - Block Name for Room to Room Calls? n
        (SA8747) - Softphone Indication on DCP Terminals? n
```

5.2. Set Hospitality Parameters

Enter **display system-parameters customer-options**. On **Page 5**, check that the Hospitality (Basic) and Hospitality (G3V3 Enhancements) are turn on to **y**. Note that Hospitality (Basic) is provided as a standard software package for Communication Manager. Contact your Avaya representative if both are not turn on.

```
display system-parameters customer-options                   Page   5 of  12
                              OPTIONAL FEATURES

    Emergency Access to Attendant? y                         IP Stations? y
            Enable 'dadmin' Login? y
            Enhanced Conferencing? y                    ISDN Feature Plus? n
                  Enhanced EC500? y     ISDN/SIP Network Call Redirection? y
    Enterprise Survivable Server? n                        ISDN-BRI Trunks? y
       Enterprise Wide Licensing? n                               ISDN-PRI? y
              ESS Administration? y          Local Survivable Processor? n
          Extended Cvg/Fwd Admin? y                  Malicious Call Trace? y
      External Device Alarm Admin? y            Media Encryption Over IP? y
  Five Port Networks Max Per MCC? n   Mode Code for Centralized Voice Mail? n
               Flexible Billing? n
    Forced Entry of Account Codes? y              Multifrequency Signaling? y
        Global Call Classification? y    Multimedia Call Handling (Basic)? y
           Hospitality (Basic)? y    Multimedia Call Handling (Enhanced)? y
 Hospitality (G3V3 Enhancements)? y           Multimedia IP SIP Trunking? y
                      IP Trunks? y

             IP Attendant Consoles? y
           (NOTE: You must logoff & login to effect the permission changes.)
```

Next, enter **change system-parameters hospitality**. On **Page 1**, set the following values:
- Message Waiting Configuration: **act-pms**.
- Controlled Restrictions Configuration: **act-pms**. (PMS is controlling the guest telephones restrictions)
- Housekeeper Information Configuration: **act-pms**.
- Number of Housekeeper ID Digits: **4** (if Housekeeper ID is required for status update, number of Digits can be set here. Set to 0 if Housekeeper ID is not required)
- Client Room Coverage Path Configuration: **act-pms**.
- Default Coverage Path for Client Rooms: Set to the number of a coverage path that provides the appropriate coverage treatment for an unoccupied guest room, e.g., coverage to the hotel operator (in this example, coverage path **100** is used).
- PMS Endpoint: **PMS** (this can be only administered if PMS link is defined ip-services in **Section 5.6**)
- PMS Protocol Mode: **transparent** with ASCII mode: **y** (supported mode FCS Gateway)
- Seconds before PMS Link Idle Timeout: Set the timeout to be greater than the FCS Gateway keep alive for Communication Manager to determine if the link is still alive (in this example, **15** seconds is used)
- Milliseconds before PMS Link Acknowledgement Timeout: **1000** (to allow for longer PMS response time)

```
change system-parameters hospitality                        Page   1 of   3
```

```
                              HOSPITALITY

                   Message Waiting Configuration: act-pms
              Controlled Restrictions Configuration: act-pms
              Housekeeper Information Configuration: act-pms
                     Number of Housekeeper ID Digits: 4
                               PMS Log Endpoint:
                        Journal/Schedule Endpoint:
            Client Room Coverage Path Configuration: act-pms
             Default Coverage Path for Client Rooms: 100
            Forward PMS Messages to Intuity Lodging? n


                           PMS LINK PARAMETERS
                               PMS Endpoint: PMS
                          PMS Protocol Mode: transparent ASCII mode? y
             Seconds before PMS Link Idle Timeout: 15
Milliseconds before PMS Link Acknowledgement Timeout: 1000
                 PMS Link Maximum Retransmissions: 3
        PMS Link Maximum Retransmission Requests: 3
               Take Down Link for Lost Messages? y
```

On **Page 2**, set the following values:

- Number of Digits from PMS: **Blank** for mixed numbering for guest rooms with extension of 5 and 6-digit length.
- Number of Digits in PMS Coverage Path: Set the number of digits for coverage path (in this example, **3** digits is used for coverage path)

```
change system-parameters hospitality                         Page   2 of   3
                              HOSPITALITY

                 Dual Wakeups? y    Daily Wakeup? y    VIP Wakeup? y
                                VIP Wakeups Per 5 Minutes: 5
                        Room Activated Wakeup With Tones? y
                Time of Scheduled Wakeup Activity Report:
                 Time of Scheduled Wakeup Summary Report:
          Time of Scheduled Emergency Access Summary Report:
                                        Announcement Type: silence


          Length of Time to Remain Connected to Announcement: 30
             Extension to Receive Failed Wakeup LWC Messages:
          Routing Extension on Unavailable Voice Synthesis:
                  Display Room Information in Call Display? y
                       Automatic Selection of DID Numbers? y
                    Custom Selection of VIP DID Numbers? y
                            Number of Digits from PMS:
                                     PMS Sends Prefix? n
                  Number of Digits in PMS Coverage Path: 3
                                 Digit to Insert/Delete:
```

5.3. Set Room Status Values

Advance to **Page 3** and enter the following values for the fields indicated:
- Definition for Rooms in State 1: **Vacant Dirty**
- Definition for Rooms in State 2: **Vacant Ready**
- Definition for Rooms in State 3: O**ccupied Dirty**
- Definition for Rooms in State 4: **Occupied Clean**

The above definition for Room Status depends on what is agreed upon for room state for PBX with PMS system.

```
change system-parameters hospitality                       Page   3 of   3
          ROOM STATES             HOSPITALITY


          Definition for Rooms in State 1: Vacant Dirty
          Definition for Rooms in State 2: Vacant Ready
          Definition for Rooms in State 3: Occupied Dirty
          Definition for Rooms in State 4: Occupied Clean
          Definition for Rooms in State 5:
          Definition for Rooms in State 6:


       HOSPITALITY FEATURES
                                 Suite Check-in? n
          Cancel Do-Not-Disturb for Wakeup Calls? y
```

5.4. Administer Feature Access Codes for Entering Housekeeping Status:

Enter **change feature-access-codes** (FACs) and advance to **Page 8**. Enter unique FACs for each of the six **Housekeeping Status (Client Room) Access Code** listed, each of which will correspond to the room status values administered in **Section 5.3** (in this example, ***78, *79, *80 and *81** were used, respectively). Also, enter unique FACs for each of the four **Housekeeping Status (Station) Access Code** listed, each of which will correspond to the first four room status values administered in **Section 5.3** (in this example, ***84, *85, *86** and ***87** were used, respectively). This is for the housekeeper or hotel staff using phones not in the guest rooms to update housekeeping status. As the housekeeper is not dialing from the guest room deskphones, the corresponding room number needs to be entered after the feature code. If Housekeeper ID is required, the number of digits is set in **Section 5.1** will need to be entered after the access code (guest room) or after the room number (non-guest room). The Housekeeper ID will be captured by Gateway via the PMS link.

```
change feature-access-codes                              Page   8 of   11
                          FEATURE ACCESS CODE (FAC)
                            Hospitality Features


                Automatic Wakeup Call Access Code: *77
   Housekeeping Status (Client Room) Access Code: *78
   Housekeeping Status (Client Room) Access Code: *79
   Housekeeping Status (Client Room) Access Code: *80
   Housekeeping Status (Client Room) Access Code: *81
   Housekeeping Status (Client Room) Access Code:
   Housekeeping Status (Client Room) Access Code:
      Housekeeping Status (Station) Access Code: *84
      Housekeeping Status (Station) Access Code: *85
      Housekeeping Status (Station) Access Code: *86
      Housekeeping Status (Station) Access Code: *87
        Verify Wakeup Announcement Access Code: *88
                Voice Do Not Disturb Access Code: *89
```

5.5. Define the FCS Gateway Server as an IP Node Name

Enter **change node-names ip** and add an entry for the FCS Gateway server using an appropriately descriptive value for the **Name** (in this case, **FCSGW**) and the corresponding **IP Address** (in this example, **10.1.10.123**).

```
change node-names ip                                        Page   1 of   2
                               IP NODE NAMES
     Name              IP Address
CLAN2a02           10.1.50.21
CLAN2a03           10.1.50.22
ESS                10.1.10.239
FCSGW              10.1.10.123
Gateway001         10.1.10.1
Gateway002         10.1.50.1
IPOffice           10.1.30.10
IPOfficeExp        10.1.30.151
IPOfficePri        10.1.10.121
Medpro2a07         10.1.50.23
Medpro2a08         10.1.50.24
PC1                10.1.10.151
PC2                10.1.10.152
TelCAAP            10.1.10.125
VAL2a11            10.1.50.26
XFire2a09          10.1.50.25
( 16 of 34   administered node-names were displayed )
Use 'list node-names' command to see all the administered node-names
Use 'change node-names ip xxx' to change a node-name 'xxx' or add a node-name
```

5.6. Define IP services in support of the PMS and CDR data links:

Enter **change ip-services** and add entries with a Service Type of **PMS** and **CDR1** (or, if a CDR1 service is already defined, **CDR2**), respectively. In each case, enter the following values in the remaining fields:

- **Local Node**: The IP Node Name of a C-LAN board or PROCR (in this example, **procr** is used for IP service definition).
- **Remote Node**: The IP Node Name of the FCS Gateway server, as defined in **Section 5.5**.
- **Remote Port**: A valid unused port (in this example, the value needs to tally with the FCS Gateway setup where **5053** is used for **PMS**, while **5052** is used for **CDR1** in **Section 6**).

```
  change ip-services                                        Page   1 of   4

                           IP SERVICES
   Service     Enabled    Local        Local      Remote      Remote
    Type                  Node         Port       Node        Port
   AESVCS      y      procr           8765
   CDR1               procr           0        FCSGW        5052
   PMS                procr           0        FCSGW        5053
```

5.7. Administer CDR Output Format

Enter **change system-parameters cdr** and choose one of the standard output formats for the **Primary Output Format** field (in this example, **customized** was entered). Set the **Primary Output Endpoint** to **CDR1** administered in **Section 5.6**. This selection will determine the expected call detail record format that will be administered in FCS Gateway. For more information on CDR output formats in Avaya Aura® Communication Manager, please refer to **[2]**.

```
change system-parameters cdr                               Page   1 of   2
                          CDR SYSTEM PARAMETERS

 Node Number (Local PBX ID): 1                       CDR Date Format: month/day
     Primary Output Format: customized    Primary Output Endpoint: CDR1
   Secondary Output Format:
          Use ISDN Layouts? n                   Enable CDR Storage on Disk? n
      Use Enhanced Formats? n     Condition Code 'T' For Redirected Calls? n
      Use Legacy CDR Formats? n                Remove # From Called Number? n
Modified Circuit ID Display? n                           Intra-switch CDR? y
             Record Outgoing Calls Only? n     Outg Trk Call Splitting? y
  Suppress CDR for Ineffective Call Attempts? y      Outg Attd Call Record? y
     Disconnect Information in Place of FRL? n      Interworking Feat-flag? n
 Force Entry of Acct Code for Calls Marked on Toll Analysis Form? n
                                    Calls to Hunt Group - Record: member-ext
Record Called Vector Directory Number Instead of Group or Member? n
Record Agent ID on Incoming? n        Record Agent ID on Outgoing? y
    Inc Trk Call Splitting? y                   Inc Attd Call Record? y
  Record Non-Call-Assoc TSC? n        Call Record Handling Option: warning
      Record Call-Assoc TSC? n  Digits to Record for Outgoing Calls: dialed
  Privacy - Digits to Hide: 0              CDR Account Code Length: 15
Remove '+' from SIP Numbers? Y
```

```
change system-parameters cdr                               Page   2 of   2
                          CDR SYSTEM PARAMETERS


    Data Item - Length         Data Item - Length       Data Item - Length
 1: date            - 6   17: in-trk-code     - 4   33:                  -
 2: time            - 4   18: node-num        - 2   34:                  -
 3: sec-dur         - 5   19: ins             - 5   35:                  -
 4: cond-code       - 1   20: ixc-code        - 4   36:                  -
 5: code-dial       - 4   21: bcc             - 1   37:                  -
 6: code-used       - 4   22: ma-uui          - 1   38:                  -
 7: dialed-num      - 23  23: res_flag        - 1   39:                  -
 8: calling-num     - 15  24: tsc_ct          - 4   40:                  -
 9: acct-code       - 15  25: tsc_flag        - 1   41:                  -
10: auth-code       - 13  26: space           - 1   42:                  -
11: space           - 1   27: return          - 1   43:                  -
12: frl             - 1   28: line-feed       - 1   44:                  -
13: in-crt-id       - 4   29: null            - 1   45:                  -
14: out-crt-id      - 4   30: null            - 1   46:                  -
15: feat-flag       - 1   31: null            - 1   47:                  -
16: attd-console    - 4   32:                 -     48:                  -

                       Record length = 134
```

5.8. Add Client Room Properties and Console Permission to Class of Service

Enter **change cos x** (where **x** is Class of Service **5** as shown below), and for the Class of Service to be assigned to guest telephones, set the **Client Room** field to **y**. For Class of Service **1** to be assigned to Operator/Front Office Deskphones, set the **Console Permissions** set to **y**.

```
change cos-group 5                                            Page   1 of   2
CLASS OF SERVICE        COS Group: 5   COS Name: Guest


                           0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15
 Auto Callback             n   y   y   n   y   n   y   n   y   n   y   n   y   n   y   n
 Call Fwd-All Calls        n   y   n   y   y   y   n   y   y   n   n   y   y   n   n   y
 Data Privacy              n   y   n   n   n   y   y   y   y   n   n   n   n   y   y   y
 Priority Calling          n   y   n   n   n   n   n   n   n   y   y   y   y   y   y   y
 Console Permissions       n   y   n   n   n   n   n   n   n   n   n   n   n   n   n   n
 Off-hook Alert            n   n   n   n   n   n   n   n   n   n   n   n   n   n   n   n
 Client Room               n   n   n   n   n  (y)  n   n   n   n   n   n   n   n   n   n
 Restrict Call Fwd-Off Net y   y   y   y   y   n   y   y   y   y   y   y   y   y   y   y
 Call Forwarding Busy/DA   n   n   n   n   n   y   n   n   n   n   n   n   n   n   n   n
 Personal Station Access (PSA) n n n n   n   n   n   n   n   n   n   n   n   n   n   n
 Extended Forwarding All   n   n   n   n   n   n   n   n   n   n   n   n   n   n   n   n
 Extended Forwarding B/DA  n   n   n   n   n   n   n   n   n   n   n   n   n   n   n   n
 Trk-to-Trk Transfer Override  n n n n   n   n   n   n   n   n   n   n   n   n   n   n
 QSIG Call Offer Originations  n n n n   n   n   n   n   n   n   n   n   n   n   n   n
 Contact Closure Activation    n n n n   n   n   n   n   n   n   n   n   n   n   n   n
 Automatic Exclusion       n   n   n   n   n   n   n   n   n   n   n   n   n   n   n   n
```

```
change cos-group 1                                            Page   1 of   2
CLASS OF SERVICE        COS Group: 5   COS Name: Guest


                           0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15
 Auto Callback             n   y   y   n   y   n   y   n   y   n   y   n   y   n   y   n
 Call Fwd-All Calls        n   y   n   y   y   y   n   y   y   n   n   y   y   n   n   y
 Data Privacy              n   y   n   n   n   y   y   y   y   n   n   n   n   y   y   y
 Priority Calling          n   y   n   n   n   n   n   n   n   y   y   y   y   y   y   y
 Console Permissions       n  (y)  n   n   n   n   n   n   n   n   n   n   n   n   n   n
 Off-hook Alert            n   n   n   n   n   n   n   n   n   n   n   n   n   n   n   n
 Client Room               n   n   n   n   n   y   n   n   n   n   n   n   n   n   n   n
 Restrict Call Fwd-Off Net y   y   y   y   y   n   y   y   y   y   y   y   y   y   y   y
 Call Forwarding Busy/DA   n   n   n   n   n   y   n   n   n   n   n   n   n   n   n   n
 Personal Station Access (PSA) n n n n   n   n   n   n   n   n   n   n   n   n   n   n
 Extended Forwarding All   n   n   n   n   n   n   n   n   n   n   n   n   n   n   n   n
 Extended Forwarding B/DA  n   n   n   n   n   n   n   n   n   n   n   n   n   n   n   n
 Trk-to-Trk Transfer Override  n n n n   n   n   n   n   n   n   n   n   n   n   n   n
 QSIG Call Offer Originations  n n n n   n   n   n   n   n   n   n   n   n   n   n   n
 Contact Closure Activation    n n n n   n   n   n   n   n   n   n   n   n   n   n   n
 Automatic Exclusion       n   n   n   n   n   n   n   n   n   n   n   n   n   n   n   n
```

5.9. Create Coverage Path

Enter **add coverage path *x*,** where **x** is the number of the default coverage path define in **Section 5.2**. In this example, for coverage path **100** set coverage for **Point1** to the operator at extension **10003**. Another coverage path **70** is created for coverage to Voice Mail is created for Operator or Front Desk Telephones. In this example, the coverage is set for **Point1** to **h70** (hunt group 70).

```
add coverage path 100                                        Page   1 of   1
                            COVERAGE PATH

                 Coverage Path Number: 100
    Cvg Enabled for VDN Route-To Party? n         Hunt after Coverage? n
                  Next Path Number:            Linkage

COVERAGE CRITERIA
    Station/Group Status    Inside Call     Outside Call
            Active?             n                 n
             Busy?              y                 y
       Don't Answer?           y                 y           Number of Rings: 2
             All?               n                 n
 DND/SAC/Goto Cover?            y                 y
   Holiday Coverage?            n                 n


COVERAGE POINTS
    Terminate to Coverage Pts. with Bridged Appearances? n
Point1: 10003           Rng:    Point2:
Point3:                         Point4:
Point5:                         Point6:
```

```
add coverage path 70                                         Page   1 of   1
                            COVERAGE PATH

                 Coverage Path Number: 70
    Cvg Enabled for VDN Route-To Party? n         Hunt after Coverage? n
                  Next Path Number:            Linkage

COVERAGE CRITERIA
    Station/Group Status    Inside Call     Outside Call
            Active?             n                 n
             Busy?              y                 y
       Don't Answer?           y                 y           Number of Rings: 3
             All?               n                 n
 DND/SAC/Goto Cover?            y                 y
   Holiday Coverage?            n                 n


COVERAGE POINTS
    Terminate to Coverage Pts. with Bridged Appearances? n
Point1: h70             Rng:    Point2:
Point3:                         Point4:
Point5:                         Point6:
```

5.10. Set Guest Room Calling Party Restrictions in a Class of Restriction (COR)

Enter **change cor *n***, where *n* is the number of the Class of Restriction to be assigned to guest telephones (in this example, COR **5** is used). In the **Calling Party Restriction** field, enter **all-toll** for restricting guest room dial digits.

```
change cor 5                                                     Page   1 of  23
                            CLASS OF RESTRICTION

              COR Number: 5
          COR Description: Guest Room

                      FRL: 0                               APLT? y
   Can Be Service Observed? n        Calling Party Restriction: all-toll
 Can Be A Service Observer? n         Called Party Restriction: none
        Time of Day Chart: 1       Forced Entry of Account Codes? n
          Priority Queuing? n             Direct Agent Calling? n
     Restriction Override: none      Facility Access Trunk Test? n
       Restricted Call List? n             Can Change Coverage? n
   Unrestricted Call List:
            Access to MCT? y           Fully Restricted Service? n
 Group II Category For MFC: 7         Hear VDN of Origin Annc.? n
         Send ANI for MFE? n            Add/Remove Agent Skills? n
             MF ANI Prefix:            Automatic Charge Display? n
 Hear System Music on Hold? y   PASTE (Display PBX Data on Phone)? n
                        Can Be Picked Up By Directed Call Pickup? n
                                  Can Use Directed Call Pickup? n
                               Group Controlled Restriction: inactive
```

5.11. Assign Class of Service and Class of Restriction Values to Guest Telephones and Operator/Front Office Deskphones

For each guest telephone extension *x*, enter **change station *x*** and enter in the **COR** and **COS** fields the values corresponding to the Class of Service **5** and Class of Restriction **5** administered in **Section 5.8** and **Section 5.10**, respectively. The default coverage path will be **100** as shown below in **Coverage Path 1** and can be changed by FCS Gateway via the PMS link to coverage path 70 upon check-in. Note the **Name** field is blank. It will be changed or updated via PMS upon Check-In/Move. The Class of Service **1** administered in **Section 5.8** with coverage path 70 will be set for Operator/Front Desk Telephone.

```
change station 71121                                         Page   1 of   4
                                  STATION

Extension: 71121                    Lock Messages? n                  BCC: 0
     Type: 1608                     Security Code: 111222              TN: 1
     Port: S00012                   Coverage Path 1: 100              COR: 5
     Name:                          Coverage Path 2:                  COS: 5
                                    Hunt-to Station:                Tests? y
STATION OPTIONS
                                             Time of Day Lock Table:
            Loss Group: 19          Personalized Ringing Pattern: 1
                                             Message Lamp Ext: 71121
          Speakerphone: 2-way            Mute Button Enabled? y
      Display Language: english
 Survivable GK Node Name:
         Survivable COR: internal          Media Complex Ext:
   Survivable Trunk Dest? y                     IP SoftPhone? n

                                                  IP Video? N
                        Short/Prefixed Registration Allowed: default
```

```
change station 10003                                         Page   1 of   4
                                  STATION

Extension: 10003                    Lock Messages? n                  BCC: 0
     Type: 1608                     Security Code: *                   TN: 1
     Port: S00005                   Coverage Path 1: 70               COR: 1
     Name: Operator                 Coverage Path 2:                  COS: 1
                                    Hunt-to Station:                Tests? y
STATION OPTIONS
                                             Time of Day Lock Table:
            Loss Group: 19          Personalized Ringing Pattern: 1
                                             Message Lamp Ext: 10003
          Speakerphone: 2-way            Mute Button Enabled? y
      Display Language: english
 Survivable GK Node Name:
         Survivable COR: internal          Media Complex Ext:
   Survivable Trunk Dest? y                     IP SoftPhone? y

                                            IP Video Softphone? n
                        Short/Prefixed Registration Allowed: default
```

5.12. Controlled Restriction

Controlled Restriction can activate four restrictions and they are:

- Outward - station can not make calls to Public Network

- Station to Station - station cannot place or receive internal calls

- Termination - station cannot receive incoming calls (this is used for DND)

- Total - station can not place or receive any calls

The PMS can send Controlled Restriction command to FCS Gateway and instruct the Communication Manager via the PMS link. Refer to **[3]** for additional details for the Controlled Restriction code list.

Enter **change system-parameters features** and in **Page 4,** the treatment for guest rooms are listed in the 3 parameters below and options are provided such as attendant, announcement, tone (re-order), coverage and extensions. The selection will determine the type of intercept treatment the caller of guest room or calling party to guest rooms receives. Note that Total Restriction uses the same treatment for **Controlled Station to Station Restriction**.

```
change system-parameters features                             Page   4 of  19
                       FEATURE-RELATED SYSTEM PARAMETERS
          Reserved Slots for Attendant Priority Queue: 5
                            Time before Off-hook Alert: 10
             Emergency Access Redirection Extension:
Number of Emergency Calls Allowed in Attendant Queue: 5
       Drop Parking User From the Call After Timeout? n
   Deluxe Paging and Call Park Timeout to Originator? y
  Controlled Outward Restriction Intercept Treatment: tone
  Controlled Termination Restriction (Do Not Disturb): coverage
          Controlled Station to Station Restriction: tone


AUTHORIZATION CODE PARAMETERS
                Authorization Codes Enabled? y
                  Authorization Code Length: 7
     Authorization Code Cancellation Symbol: #
                     Attendant Time Out Flag? n
                 Display Authorization Code? n
                 Controlled Toll Restriction Replaces: none
```

6. Configure FCS Gateway

This section details the essential portion of the FCS Gateway configuration to interoperate with Avaya Aura® Communication Manager. These Application Notes assume that the FCS Gateway application has already been properly installed by FCS services personnel. Further details of the FCS Gateway setup can be found in the FCS Gateway Installation Manual **[5]**.

1. The FCS Gateway Avaya PMS interface module port and data configuration are defined in the AvayaAscii-PBX.xml located in the "C:\Program Files (x86)\FCS\Gateway\Control\" directory. The host is set as Interface Type **2** (tcp.ip) listening to port **5053**. This corresponds with the setup of Communication Manager at **Section 5.6** for the **PMS** service type.

.

```xml
<PBX ID="AvayaAscii">
  <!-- need to match with the XML filename -->
  <CommunicationSetting>
                <Name>Avaya Ascii</Name>
        <!--
 :
 :
-->
      <InterfaceType>2</InterfaceType>
 <InterfaceSetting>H,127.0.0.1:5053</InterfaceSetting>
 <UDPSvrInterfaceSetting></UDPSvrInterfaceSetting>
        <!--
              if tcp.ip,  interfaceSetting could be "X,192.168.1.12:5600",
                                    where X = H = host, C=client
 :
 :
```

2. To support 2 types of Room Status records as 2 different feature codes were used:
   - HKR – Communicate housekeeper-dialed status changes originated from room
   - HKS – Communicate housekeeper-dialed status changes originated from designated station

```xml
        <RoomStatusConfiguration>
<!-- 12345678901234567890 -->
<!-- X!xHKR1001351FFFFF  Xx -->
            <ValidRecord>
                <ValidPL>4,3</ValidPL>
                <ValidString>HKR</ValidString>
                <ValidPL>4,3</ValidPL>
                <ValidString>HKS</ValidString>
            </ValidRecord>
            <MaidIdPL>15,4</MaidIdPL>
            <MaidPinPL></MaidPinPL>
            <ExtensionPL>10,5</ExtensionPL>
            <RoomStatusPL>7,1</RoomStatusPL> <!-- PBX interface will map the room
status code accordingly before passing to Unicorn -->
            <ConfirmationPL></ConfirmationPL>

        <ConfirmationStringPositionIsDynamic></ConfirmationStringPositionIsDynamic>
            <ConfirmationString></ConfirmationString>
        </RoomStatusConfiguration>
```

3. The FCS Gateway Avaya CDR interface module port & data configuration are defined in the Generic-CDR.xml located in the "C:\Program Files (x86)\FCS\Gateway\Control\" directory. The host is set as type **2** (**tcp.ip**) listening to port **5052**. This corresponds with the setup of Communication Manager at **Section 5.6** for the **CDR1** service type.

```
<PBX ID="CDR1">
  <!-- need to match with the XML filename -->
      <CommunicationSetting>
      <Name>Avaya</Name>

      <ProtocolFormat>2</ProtocolFormat>
  <!--1 =[STX]xxxxx[ETX], 2=xxxxxxx[13][10]  3=[13][10]xxxxxxxx, 4=Fixed Lenght-->
      <InterfaceType>2</InterfaceType>
  <!--1 = RS232, 2=tcp.ip  3=udp, 4=telnet,5=bisync 6=file sharing-->
      <InterfaceSetting>H,127.0.0.1:5052</InterfaceSetting>
  <!-- if tcp.ip, interfaceSetting could be "X,192.168.1.12:5600" , where X = H = host,
C=client-->
<!-- 3,9600,n,8,1 - com. port 3, baud rate 9600,n,8,1 -->
      <UDPSvrInterfaceSetting></UDPSvrInterfaceSetting>
```

4. FCS Gateway provides a Web interface for posting and reporting. Administrator can log in with the appropriate credentials from "*http://<server name or ip address>/FCSGateway.Web/Login.aspx*" as shown below by substituting the appropriate server ip address of the FCS Gateway.
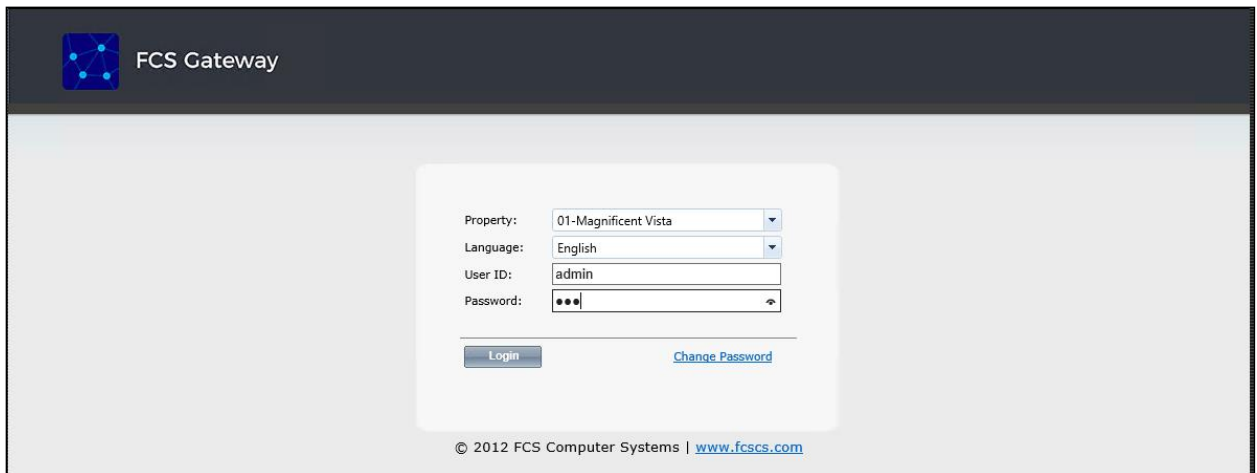
5. Click **Home → System → Interface Listing** to show the interface integrated and their status which should show up ⬆. Below are the **Device ID** list and their purpose. A Fidelio Open Interface Simulator was used as Front Office System to send PMS commands. FCS Voice was used as Voice Mail System which also initiates Wakeup calls to Communication Manager. Details can be found in Application Notes **[4]**.

- **FOS1** – Front Office System using Fidelio Open Interface Simulator
- **PBX1** – Avaya Aura® Communication Manager PMS
- **CDR1** – Avaya Aura® Communication Manager Call Detail Recording
- **VMS1** – FCS Voice

	DEVICE ID	DEVICE DESC	EXE NAME	VERSION	STATUS	POSTING
🔍	FOS1	Fidelio FIAS	FIAS.FOS.exe	1.2.5.9	⬆	ON
🔍	PBX1	Avaya CM	AvayaASCII.PBX.exe	1.2.17.65	⬆	ON
🔍	CDR1	Avaya CDR Interface	Generic.CDR.exe	1.2.2.46	⬆	N/A
🔍	VMS1	FCS Voice	Phoenix.VMS.exe	1.2.2.56	⬆	ON

Interface Listing

Refresh   Last refreshed at 7:02:05 PM

Occupancy 15.38%

7. Verification Steps

This section describes steps that may be used to verify the configuration.

To verify that the PMS data link between Avaya Aura® Communication Manager and FCS Gateway is operational, enter **status pms-link** at the SAT and look for a status of **up** in the **Physical Link State** and **Protocol State** fields.

```
status pms-link
                       PMS LINK STATUS

       Physical Link State: up
           Protocol State: up

           Maintenance Busy? no
         Data Base Swapping? no
```

To verify that the CDR data link between Avaya Aura® Communication Manager and FCS Gateway is operational, enter **status cdr-link** at the SAT and look for a status of **up** in the **Link State** field of the CDR link to FCS Gateway (in this example, the **Primary** link).

```
status cdr-link
                              CDR LINK STATUS
                   Primary                        Secondary

       Link State: up                        CDR not administered

      Date & Time: 2018/10/09 16:00:07        0000/00/00 00:00:00
  Forward Seq. No: 0                          0
 Backward Seq. No: 0                          0
CDR Buffer % Full:   0.00                        0.00
      Reason Code: OK
```

Initiate a check-in request for a guest extension from the associated Property Management System. At Avaya Aura® Communication Manager SAT, enter **status station x** and verify that **Room Status** is **occupied** and **User Cntrl Restr** is **none**.

```
status station 71122                                       Page   1 of   7
                            GENERAL STATUS
       Administered Type: 9641G             Service State: in-service/on-hook
         Connected Type: 9641         TCP Signal Status: connected
               Extension: 71122          Network Region: 1
                    Port: S00022      Parameter Download: complete
           Call Parked? no               SAC Activated? no
      Ring Cut Off Act? no
Active Coverage Option: 1             one-X Server Status: N/A

           EC500 Status: N/A        Off-PBX Service State: N/A
   Message Waiting:
   Connected Ports:


  Limit Incoming Calls? no

 User Cntrl Restr: none                      HOSPITALITY STATUS
Group Cntrl Restr: none                   Awaken at:
                                           User DND: not activated
                                          Group DND: not activated
                                        Room Status: occupied
```

Initiate a check-out for the guest extension from the associated Property Management System. At Avaya Aura® Communication Manager SAT, enter status station *x* again and verify that Room Status is vacant and User Cntrl Restr is outward for DND. Make public call from the guest extension to verify that it is blocked.

```
status station 71121                                          Page   1 of   7
                              GENERAL STATUS
       Administered Type: 1608             Service State: in-service/on-hook
         Connected Type: 1608          TCP Signal Status: connected
              Extension: 71121          Network Region: 1
                   Port: S00012      Parameter Download: complete
            Call Parked? no               SAC Activated? no
      Ring Cut Off Act? no
  Active Coverage Option: 1           one-X Server Status: N/A

            EC500 Status: N/A        Off-PBX Service State: N/A
     Message Waiting:
     Connected Ports:


    Limit Incoming Calls? no

  User Cntrl Restr: outward                    HOSPITALITY STATUS
 Group Cntrl Restr: none                    Awaken at:
                                             User DND: not activated
                                            Group DND: not activated
                                          Room Status: vacant
```

8. Conclusion

These Application Notes describe the procedures for configuring FCS Gateway to interoperate with Avaya Aura® Communication Manager R8.0. All interoperability compliance test cases executed against such a configuration were completed successfully.

9. Additional References

The following Avaya product documentation is available at http://support.avaya.com.

[1]   *Administering Network Connectivity on Avaya Aura® Communication Manager*, Release 8.0, Issue 1, Aug 2018
[2]   *Administering Avaya Aura® Communication Manager*, Release 8.0, Issue 1, Jul 2018
[3]   *Guestworks® and DEFINITY® Enterprise Communications Server PMS Interface Specifications, Issue 4, Dec 2001. Document ID 55-231-601*
[4]   *Application Notes for FCS Voice (SIP) v3.1 with Avaya Aura® Communication Manager R8.0 and Avaya Aura® Session Manager R8.0*

The following documents are provided by FCS Computer Systems Sdn Bhd upon request.
[5]   *FCS Gateway v2 Installation Manual, Version 2.7*
[6]   *FCS Gateway v2 User Manual, Version 2.2*