Avaya Solution & Interoperability Test Lab

Application Notes for Intradiem 9.5 with Avaya Call Management System R18 Using Real-Time Socket Interface – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for Intradiem 9.5 to interoperate with Avaya Call Management System R18 using Real-Time Socket interface. Intradiem is a work force management solution that provides forecasting, scheduling, and monitoring of work for contact center agents.

Readers should pay attention to **Section 2**, in particular the scope of testing as outlined in **Section 2.1** as well as the 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 compliance testing and additional technical discussions. Testing was conducted via the DevConnect Program at the Avaya Solution and Interoperability Test Lab.

1. Introduction

These Application Notes describe the configuration steps required for Intradiem 9.5 application with Avaya Call Management System (hereafter referred as CMS) Release 18.

On Avaya Aura® Communication Manager (Communication Manager), relevant contact center resources consisting of Vector Directory Number (VDN), Skill, and Agent are configured to be "measured" by CMS. When a call travels through a "measured" resource on Communication Manager, the call measurement data is sent to CMS, which in turn provides the VDN and skill data to Intradiem via Real-Time Socket (RTS) interface developed by Avaya Professional Services.

The test integration includes a real-time connection between Intradiem and CMS, to supply real-time VDN and skill information to Intradiem. The real-time connection is achieved through the RTS interface developed by Avaya Professional Services and installed on CMS. A TCP client-server model is used for the connection, with CMS being the "client", and the Intradiem server being the "server". The Intradiem server runs a TCP "listener" process to accept data in real-time from CMS.

2. General Test Approach and Test Results

The interoperability compliance test included feature and serviceability testing. The feature test cases were performed manually. Incoming calls were made within a measured interval to the measured resources to enable VDN and skill measurement data to be sent to Intradiem. Manual call controls and work mode changes from the agent telephones were exercised to populate specific fields in the data stream. In the compliance test, the measured interval is fixed at 30 minutes.

The serviceability test cases were performed manually by forcing solution components to go out of service and come back and verifying Intradiem server's ability to recover.

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 this DevConnect Application Note 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 this Application Note, the interface between Avaya systems and the Intradiem did not include use of any specific encryption features as requested by Intradiem.

Encryption (TLS/SRTP) was used internally between Avaya products.

2.1. Interoperability Compliance Testing

The feature testing focused on verifying Intradiem correctly obtained VDN and Skill data from CMS and triggered report based on the events. Many call center scenarios including number of agents in various work modes, incoming call to VDN, abandon call, call waiting in queue, service level percent, agent staff by queue in real-time.

The serviceability testing focused on verifying the ability of the Intradiem server to recover from adverse conditions, such as stopping the RTS interface on CMS, disconnecting the Intradiem server from the network, and rebooting the Intradiem server.

2.2. Test Results

All test cases were executed successfully.

2.3. Support

For technical support on the Intradiem, contact Intradiem via phone or internet.
- **Phone:** +1 (888) 566-9457
- **Web:** http://www.intradiem.com

3. Reference Configuration

The compliance test was done with all the test equipment in an Avaya Lab. The Avaya side equipment included Communication Manager, CMS, and several IP phones. The Intradiem application resided on a Windows 2012 R2 Standard running on a blade server. The GUI interface of Intradiem was accessible through a web browser. All calls to and from the public network were routed through an ISDN PRI trunk.
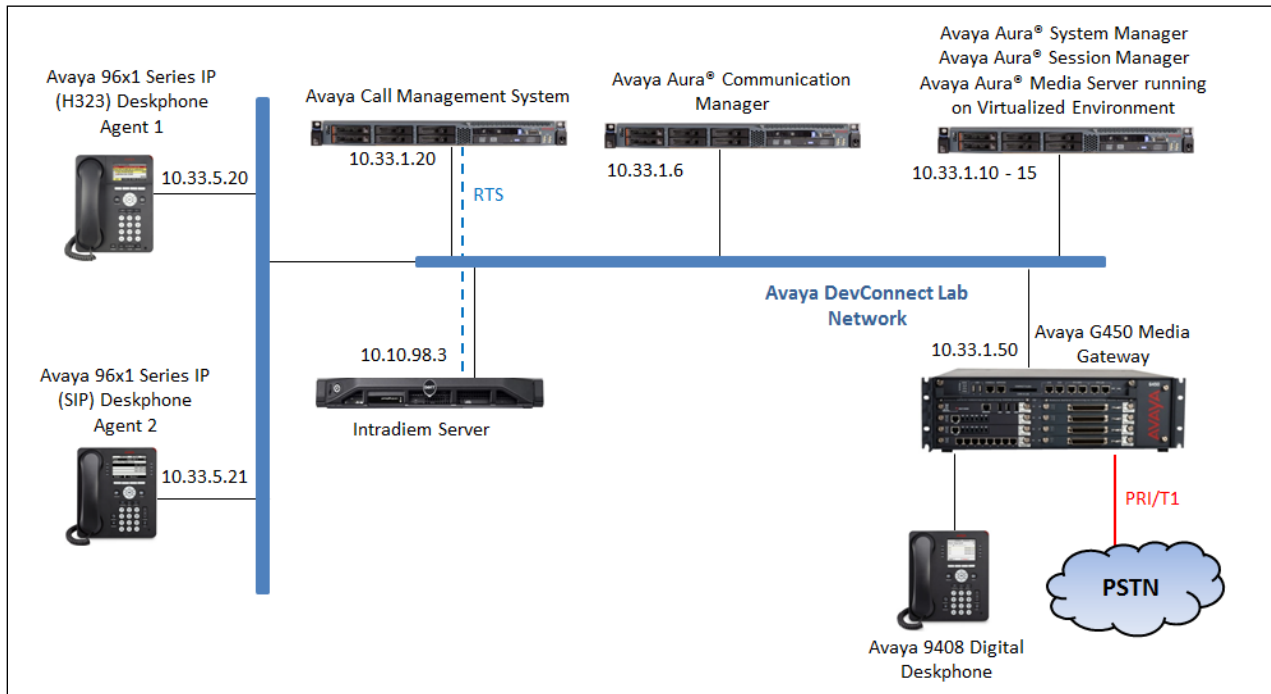

Figure 1: Intradiem with Avaya Call Management System

KP; Reviewed
SPOC 6/28/2018

Solution & Interoperability Test Lab Application Notes
©2018 Avaya Inc. All Rights Reserved.

4 of 16
Intradiem-RTS

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 running on Virtualized Environment	R017x.00.0.441.0 7.1.3.0.0-FP3
Avaya Aura® System Manager running on Virtualized Environment	7.1.3.0.037763
Avaya Aura® Session Manager running on Virtualized Environment	7.1.3.0.037763
Avaya Aura® Media Server running on Virtualized Environment	7.8.0.384

Avaya G450 Media Gateway
    DCP MM712
    DS1 MM710
	39.12.0
	HW09 FW014
	HW05 FW019

Avaya Call Management System	R18.0.2
Avaya 96x1 H.323 Deskphones	6.65
Avaya 96x1 SIP Deskphones	7.1.2
Intradiem running under Windows Server 2012 R2 Standard	9.5.25

5. Configure Avaya Aura® Communication Manager

The detailed administration of contact center resources and connectivity between Communication Manager and CMS are not the focus of these Application Notes and will not be described. For administration of contact center resources and connectivity to CMS, refer to the appropriate documentation listed in **Section 10**.

This section provides the procedures for how to enable VDN, Skill, and Agent measurement data to be sent to CMS. The procedures include the following areas:

- Administer measured VDN
- Administer measured Skill and Agent

For the compliance testing, the following contact center devices were used.

VDN	Skill	Agents
3340	1	1000
3340	1	1001
3341	2	1002

5.1. Administer Measured VDN

Use the "change vdn n" command, where "n" is the extension of the VDN to be measured by CMS. Set the **Measured** field to "both" to enable measurement data on the VDN to be sent to CMS. Repeat this step for all VDNs that will be measured by CMS.

```
change vdn 3340                                              Page   1 of   3
                          VECTOR DIRECTORY NUMBER

                            Extension: 3340
                                Name*: Contact Center 1
                          Destination: Vector Number        1
                    Attendant Vectoring? n
                   Meet-me Conferencing? n
                    Allow VDN Override? n
                                  COR: 1
                                  TN*: 1
                             Measured: both     Report Adjunct Calls as
ACD*? n
        Acceptable Service Level (sec): 20

        VDN of Origin Annc. Extension*:
                             1st Skill*:
                             2nd Skill*:
                             3rd Skill*:

* Follows VDN Override Rules
```

For the compliance testing, two VDNs with extensions 3340 and 3341 were configured to be measured.

5.2. Administer Measured Skill and Agent

Use the "change hunt-group n" command, where "n" is the number of the Skill group to be measured by CMS. Navigate to **Page 2**, and set the **Measured** field to "both" to enable measurement data on the Skill group and the associated Agents to be sent to CMS. Repeat this step for all Skill groups that will be measured by CMS.

```
change hunt-group 1                                          Page   2 of   4
                               HUNT GROUP

                    Skill? y      Expected Call Handling Time (sec): 20
                      AAS? n          Service Level Target (% in sec): 80 in 20
                 Measured: both
      Supervisor Extension:


       Controlling Adjunct: none


        VuStats Objective:

    Multiple Call Handling: none


 Timed ACW Interval (sec): 100      After Xfer or Held Call Drops? n
```

For the compliance testing, two Skill groups with group numbers 1 and 2 were configured to be measured. In addition, three agents with extensions 3301, 3302 and 3402 and agent id 1000, 1001 and 1002 were used as available agents for the above Skill groups.

```
list agent-loginID


                          AGENT LOGINID
Login ID     Name            Extension      Dir Agt  AAS/AUD      COR Ag Pr SO
              Skil/Lv Skil/Lv Skil/Lv Skil/Lv Skil/Lv Skil/Lv Skil/Lv Skil/Lv

1000        Agent 1000   unstaffed                                   1   lvl
              1/01     /        /        /        /        /        /
1001        Agent 1001   unstaffed                                   1   lvl
              1/01     /        /        /        /        /        /
1002        Agent 1002   unstaffed                                   1   lvl
              2/01     /        /        /        /        /        /
```

6. Configure Avaya Call Management System

The connectivity between CMS and Communication Manager is assumed to be in place and will not be described. In addition, these Application Notes assume the intra-hour interval is already administered to 30 minutes.

This section provides the procedures for the following:

- Verify intra-hour interval
- Configure RTS interface
- Enable RTS interface
- Configure split/skill call profile

6.1. Verify Intra-Hour Interval

From the **MainMenu** screen, select **System Setup** → **Storage Intervals** and press **Enter**.

```
6/ 4/18  22:09  Avaya(TM) CMS                               Windows: 0
of 10   ^

  lMainMenuqqqqqqqqqqqqqqqqqqqqqqqk
  x Reports>                      x
  x Dictionary>                   x
  x Exceptions>                   x
  x Agent Administration>         x
  x Call Center Administration> x
  x Custom Reports>               x
  x User Permissilqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqk
  x System Setup>x Switch Setup                   x
  x Maintenance> x Pseudo-ACD Setup               x
  x CALA-RTA>    x Load Pseudo-ACD Data           x
  x Calabrio>    x Data Storage Allocation        x
  x Generic-RTA> x Free Space Allocation          x
  x RT_Socket>   x Storage Intervals              x
  x Logout       x Main Menu Addition             x
  x ;            x CMS State                      x
  mqqqqqqqqqqqqqqx Data Collection                x
                 x External Application Status    x
                 x Data Summarizing               x
                 x R3 Migrate Data                x
                 x Data Summarization Time Zone x
                 mqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqj



  Help    Window  Commands  Keep    Exit   Scroll Current MainMenu
```

The **System Setup: Storage Intervals** screen is displayed. Make certain that the administered **Intrahour interval** for the data is "30 minutes".

```
6/ 4/18  22:10  Avaya(TM) CMS                         Windows: 1 of 10   ^



                              System Setup:  Storage Intervals      interopcm
                              Intrahour interval (Select one):      x Modify
                                     < >  15 minutes               mqqqqqqqq
                                     <x>  30 minutes
                                     < >  60 minutes

                              Data summarizing time:  12:35 AM
                              Switch time zone offset (-23 to +23): 0

                              Week start day          Week stop day
                              (Select one):           (Select one):
                               <x> Sunday              < > Sunday
                               < > Monday              < > Monday
                               < > Tuesday             < > Tuesday
                               < > Wednesday           < > Wednesday
                               < > Thursday            < > Thursday
                               < > Friday              < > Friday
                               < > Saturday            <x> Saturday

                              Daily start time:  12:00 AM
                              Daily stop time:   11:59 PM

    Help    Window  Commands  Keep   Exit   Scroll Current MainMenu
```

6.2. Configure RTS Interface

The RTS interface is configured through a configuration file named **rta.conf** located in the directory where the interface software is installed. In the compliance test configuration, the path to the directory was **/export/home/pserv/rta_socket**. In the **rta.conf** file, select a Session number and configure the following items:

- **HOST1:** IP address or hostname of the Intradiem server which is defined in /etc/hosts
- **PORT1:** port for the TCP/IP connection
- **ACD1:** ACD that sources the real-time data
- **REFRESH1:** real-time report refresh rate
- **DEST_APP1:** a desired name of application

The following screenshot shows how the interface was configured in the test configuration.

```
#------------------------------ Session 1 -------------------------------
#------------------ (with EXAMPLE settings, NOT defaults) ----------------
HOST1=10.10.98.3              # The receiving server's host name in /etc/hosts
PORT1=7001                    # The receiving server's port
ACD1=1                        # ACD being monitored
OPTS1=""                      # Applicable command line options
REPORT1=tvi1                  # Respective custom report name
MONITOR_LIST1="1-1999"        # Skills to monitor
REFRESH1=15                   # Respective report refresh rate
ENCRYPTED1=no                 # Secure encrypted connection (yes/no)
                              # When ENCRYPTED=yes, additional stunnel
                              # configuration will be required.
DEST_APP1="Intradiem"         # Destination app for rt_socket or Generic-RTA
```

6.3. Enable RTS Interface

From the **MainMenu** screen, select the option that corresponds to the customized RTS interface created by Avaya Professional Services for Intradiem, in this case the option is **RT_Socket**. Note that the actual option name may vary. Press the **Enter** key.

```
6/ 4/18  23:15  Avaya(TM) CMS


  lMainMenuqqqqqqqqqqqqqqqqqqqqqk
 x Reports>                    x
 x Dictionary>                 x
 x Exceptions>                 x
 x Agent Administration>       x
 x Call Center Administration> x
 x Custom Reports>             x
 x User Permissions>           x
 x System Setup>               x
 x Maintenance>                x
 x CALA-RTA>                   x
 x Calabrio>                   x
 x Generic-RTA>               x
 x RT_Socket>                  x
 x Logout                      x
 x ;                           x
  mqqqqqqqqqqqqqqqqqqqqqqqqqqqqqj




  Help    Window  Commands  Keep    Exit   Scroll Current MainMenu
```

The **RT_Socket Menu** is displayed. Enter "1" followed by the **Enter** key, to start the interface.

```
------ RT_Socket Menu ------

1)  Start RT_Socket Interface
2)  Stop RT_Socket Interface
3)  Check Status
4)  View Maintenance Log
5)  Show RT_Socket Version
6)  Show/Verify Licensed Authorizations
7)  Show Staffed Agents Count
8)  Change RT_Socket Input Parameters
9)  Show RT_Socket Configuration
Q)  Quit
--------------------
Selection: 1
```

The System will prompt for the session number. Enter the session number selected in **Section 6.2** and the **Enter** key.

```
------ RT_Socket Menu ------

1)   Start RT_Socket Interface
2)   Stop RT_Socket Interface
3)   Check Status
4)   View Maintenance Log
5)   Show RT_Socket Version
6)   Show/Verify Licensed Authorizations
7)   Show Staffed Agents Count
8)   Change RT_Socket Input Parameters
9)   Show RT_Socket Configuration
Q)   Quit
---------------------
Selection: 1

Which RT_Socket session do you want to start? [1-32] [all] 1
Starting rt_socket session 1.  Please wait ...

Press Enter to return to menu:
```

6.4. Configure Split/Skill Call Profile

The split/skill call profile setup needs to be created for service level percent data. To create a call profile, from the CMS **MainMenu** (not shown) navigate to **Call Center Admin → Split/Skill Call Profile Setup**. The following call profile setup was created for the test configuration; the **Acceptable service level** was set to **10** for **Skill 1**.

```
6/ 4/18  23:30  Avaya(TM) CMS                          Windows: 1 of 10   ^



         Call Center Admin: Split/Skill Call Profile Setup        interopcm
                                                                  x Add
        Split(s)/                                                 x Delete
        Skill(s): 1                                               x Find one
                                                                  x List all
        Acceptable service level: 10                              x Modify
                                                                  x Next
        Service level increments (seconds):                       x Previous
         Inc 1    Inc 2    Inc 3    Inc 4    Inc 5                 mqqqqqqqqqq
         0 to  5    to  10   to  15   to  20    to  25

         Inc 6    Inc 7    Inc 8    Inc 9    Inc 10
          to  30    to  60   to  90    to  12   And Above




   Help    Window  Commands   Keep    Exit   Scroll Current MainMenu
```

7. Configure Intradiem

During the compliance test, the installation and configuration of Intradiem was performed by Intradiem engineer, the configuration of Intradiem is out of scope of this document. Intradiem has requested not to include their configuration in these Application Notes. If issues or questions arise related to the company product, reach out to Intradiem directly, as shown in **Section 2.2**.

8. Verification Steps

This section provides the tests that can be performed to verify proper configuration of CMS and Intradiem.

8.1. Verify Avaya Call Management System

From the CMS server, follow the procedures in **Section 6.2** to display the **MainMenu**. Verify the status of the connection to Communication Manager by selecting **Maintenance → Connection Status**, and press the Enter key.

```
6/ 5/18  22:15  Avaya(TM) CMS                          Windows: 0 of 10   ^

  lMainMenuqqqqqqqqqqqqqqqqqqqqqk
 x Reports>                     x
 x Dictionary>                  x
 x Exceptions>                  x
 x Agent Administration>        x
 x Call Center Administration> x
 x Custom Reports>              x
 x User Permissions>            x
 x System Setup>lqqqqqqqqqqqqqqqqqqqqqqqqqk
 x Maintenance> x Back Up Data           x
 x CALA-RTA>    x Restore Data           x
 x Calabrio>    x Backup/Restore Devices x
 x Generic-RTA> x Printer Administration x
 x RT_Socket>   x Report Administration  x
 x Logout       x Connection Status      x
 x ;            x ACD Status             x
 mqqqqqqqqqqqqqx Archiving Status        x
               x ACD Admin Log Report    x
               x Error Log Report        x
               x Firewall Status         x
               mqqqqqqqqqqqqqqqqqqqqqqqqqj




   Help    Window  Commands  Keep   Exit   Scroll Current MainMenu
```

In the **Maintenance: Connection Status** dialog box, enter the corresponding **ACD(s)** number followed by the **Enter** key. For the compliance testing, the corresponding switch connection is ACD "1". Select **Find one** (not shown) in the right window and press **Enter**.

The **Maintenance: Connection Status** dialog box is updated with status information. Verify that the **Session** status is "data transfer" and "normal", and that the **Connection** status is "operational", as shown below.

```
 Maintenance: Connection Status                                      All ACDs

                                                             x Find one
     ACD(s): interopcm                                       x List all
     Application: data transfer                              x Next
     Session: data transfer        normal                   x Previous
     Connection: operational                                 mqqqqqqqqqq
     Date/Time:  6/ 5/18 10:18 PM
     Errors:



     1 matches found
```

8.2. Verify RTS Interface

From the **MainMenu** screen in **Section 8.1**, select the **RT_Socket** option and press **Enter**. The **RT_Socket Menu** is displayed. Enter **3** to check the status of the RT_Socket session.

```
 ------ RT_Socket Menu ------

1)   Start RT_Socket Interface
2)   Stop RT_Socket Interface
3)   Check Status
4)   View Maintenance Log
5)   Show RT_Socket Version
6)   Show/Verify Licensed Authorizations
7)   Show Staffed Agents Count
8)   Change RT_Socket Input Parameters
9)   Show RT_Socket Configuration
Q)   Quit
--------------------
Selection:
```

Verify that the session is running and is connected.

```
Checking status of all configured sessions ...

RT_Socket session 1 is running, not encrypted, and connected.


Press Enter to return to menu:
```

KP; Reviewed
SPOC 6/28/2018
Solution & Interoperability Test Lab Application Notes
©2018 Avaya Inc. All Rights Reserved.
14 of 16
Intradiem-RTS

9. Conclusion

These Application Notes describe the configuration steps required for Intradiem 9.5 to interoperate with Avaya Call Management System R18, via the customized RTS interface provided by Avaya Professional Services. All feature and serviceability test cases were completed.

10. Additional References

This section references the product documentation that is relevant to these Application Notes. Documentation for Avaya products may be obtained via http://support.avaya.com

[1] Administering Avaya Aura® Communication Manager, Release 7.1, May 2018, Document Number 03-300509, Issue 1.
[2] Avaya Call Management System Software Installation, Maintenance, and Troubleshooting for Linux, Release 18.0.2, February 2018.
[3] Deploying Avaya Call Management System in an Avaya Customer Experience Virtualized Environment, Release 18, April 2018.

Documentation related to Intradiem may directly be obtained from Intradiem

KP; Reviewed
SPOC 6/28/2018
Solution & Interoperability Test Lab Application Notes
©2018 Avaya Inc. All Rights Reserved.
15 of 16
Intradiem-RTS

KP; Reviewed
SPOC 6/28/2018
Solution & Interoperability Test Lab Application Notes
©2018 Avaya Inc. All Rights Reserved.
16 of 16
Intradiem-RTS