



**Avaya Solution & Interoperability Test Lab**

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## **Application Notes for Inradiem R10.5 with Avaya Call Management System R19 Using Real-Time Agent Adapter – Issue 1.0**

### **Abstract**

These Application Notes describe the configuration steps required for Inradiem to interoperate with Avaya Call Management System using Real-Time Agent adapter. Inradiem 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 application with Avaya Call Management System (hereafter referred as CMS) Release 19 using Generic-RTA interface.

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 data to Intradiem via Generic Real-Time Agent (RTA) developed by Avaya Professional Services.

The test integration includes a real-time connection between Intradiem and CMS, to supply real-time agent state information to Intradiem. The real-time connection is achieved through the Real Time Socket Agent (RTA) adapter 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 Agents to enable measurement data to be sent to CMS. 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.

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

## 2.1. Interoperability Compliance Testing

The feature testing focused on verifying Intradiem correctly obtaining Agent data from CMS. A number of call center scenarios including agent login, agent mode change, agent logout, incoming ACD calls, abandon call, call waiting in queue, call waiting at agent, hold/resume, transfer, conference, direct agent call, extension call from agent, incoming call to agent extension, and redirect on no answer were exercised.

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

## 2.2. Test Results

All test cases were executed successfully.

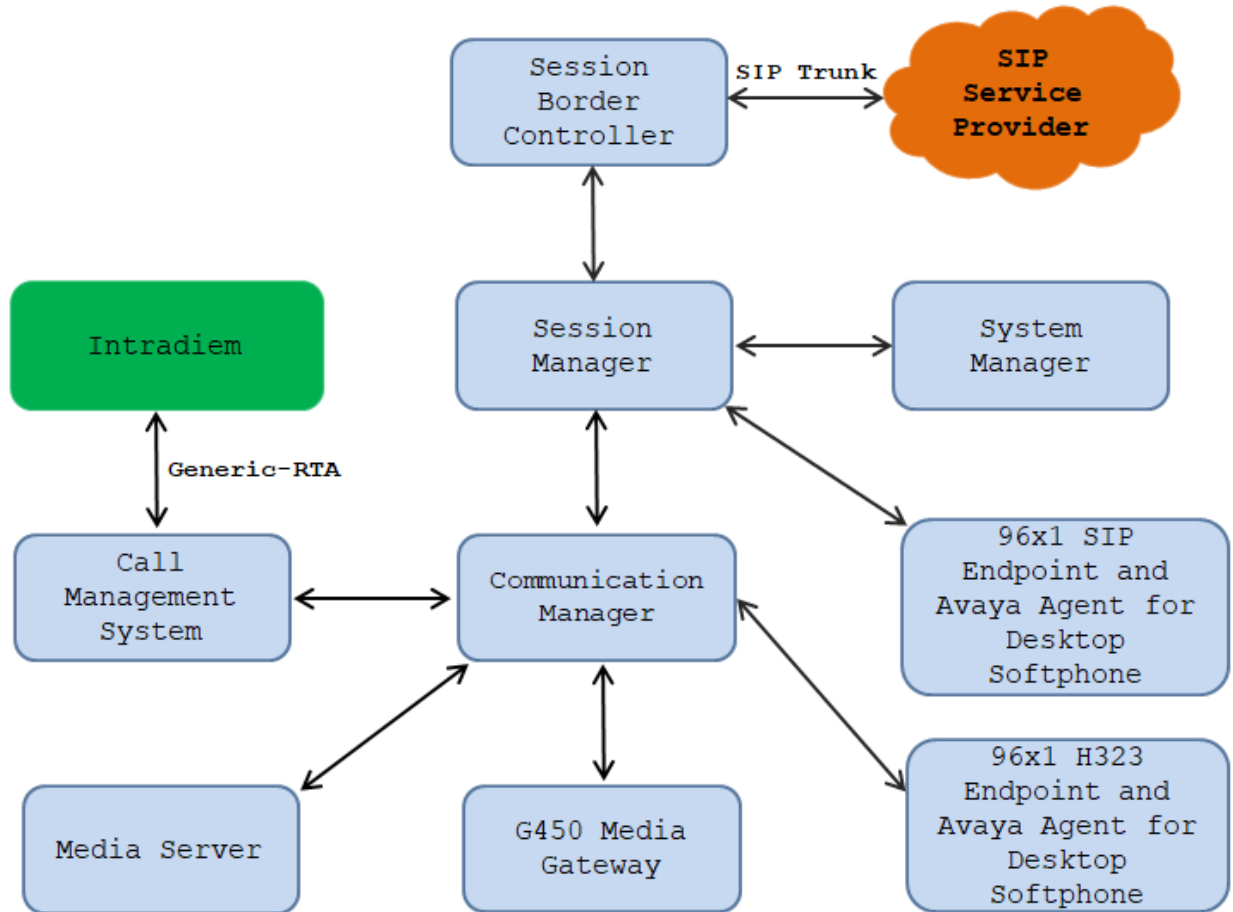
## 2.3. Support

For technical support on the Intradiem, contact Intradiem via phone, email, 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, Call Management System, and several IP phones. The Intradiem application resided on a Windows 2016 Standard running on virtual machine. All calls to and from the public network were routed through Avaya Session Border Controller for Enterprise via SIP trunk.



**Figure 1: Intradiem with Avaya Call Management System**

## 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 Virtual Environment	8.1.3 8.1.3.2.0.890.26989
Avaya G450 Media Gateway	41.34.0
Avaya Aura® Media Server running on Virtual Environment	8.0 8.0.2.163
Avaya Call Management System Avaya Real-Time Agent	19.1.0 6.3.15
Avaya Aura® System Manager running on Virtualized Environment	8.1.3 8.1.3.0.1011784
Avaya Aura® Session Manager running on Virtualized Environment	8.1.3 8.1.3.0.813014
Avaya Session Border Controller for Enterprise	8.1.2 8.1.2.0-37-21065
Avaya 9611G IP Deskphone (SIP)	7.1.9.0.8
Avaya Agent for Desktop SIP Softphone (H323 and SIP)	2.0.6.0.10
Avaya 9641G IP Deskphone (H.323)	6.8304
Intradiem running in Windows 2016 Server	10.5

## 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
3341	2	1001
		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 “external” 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: external 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 “external 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: external
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
                1/01    /      /      /      /      /      /
1001          Agent 1001  unstaffed
                1/01    /      /      /      /      /      /
1002          Agent 1002  unstaffed
                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:

- Configure RTA Adapter
- Enable RTA Adapter

### 6.1. Configure RTA Adapter

The Generic-RTA adapter is configured through a configuration file named **rta.conf** located in the directory where the adapter software is installed. In the compliance test configuration, the path to the directory was **/export/home/pserv/rt\_gen**. In the **rta.conf** file, select a Session number and configure the following items:

- **HOST:** IP address or hostname of the Intradiem server which is defined in **/etc/hosts**.
- **PORT:** port for the TCP/IP connection.
- **ACD:** ACD that sources the real-time date.
- **REFRESH:** real-time report refresh rate.

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

```
#----- Session 1 -----
#----- (with EXAMPLE settings, NOT defaults) -----
HOST1=10.33.1.60           # The receiving server's host name in /etc/hosts
PORT1=7002                # The receiving server's port
ACD1=1                    # ACD being monitored
OPTS1="-pLNSV             # Applicable command line options
REPORT1=xPrta_gen         # Respective custom report name
MONITOR_LIST1="1-2000"    # 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
```



## 6.2. Enable RTA Adapter

To access the CMS main menu, from the command line under super user privilege issue a command “su - cms cms”. From the **MainMenu** screen, select the option that corresponds to the customized Real-Time Agent interface created by Avaya Professional Services for Intradem, in this case the option is **Generic-RTA**. Note that the actual option name may vary. Press the **Enter** key.

```
8/20/21 00:44 Avaya(TM) CMS
Windows: 0 of 10 ^

lMainMenuqqqqqqqqqqqqqqqqqqqqqqqqk
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 Generic-RTA> x
x RT_Socket> x
x Logout x
x ; x
mqqqqqqqqqqqqqqqqqqqqqqqqqqqqqj
```

The **Generic-RTA Menu** is displayed. Enter “1” followed by the **Enter** key, to start the interface

```
----- Generic-RTA Menu -----
1) Start Generic-RTA Interface
2) Stop Generic-RTA Interface
3) Check Generic-RTA Status
4) View Maintenance Log
5) Show Generic-RTA Version
6) Show/Verify Licensed Authorizations
7) Show Staffed Agents Count
8) Change Generic-RTA Split(s)/Skill(s) and/or ACD
9) Show Generic-RTA Configuration
Q) Quit
-----
Selection: 1
```

The System will prompt for the session number. Enter the session number 1 and the **Enter** key.

```
----- Generic-RTA Menu -----
1) Start Generic-RTA Interface
2) Stop Generic-RTA Interface
3) Check Generic-RTA Status
4) View Maintenance Log
5) Show Generic-RTA Version
6) Show/Verify Licensed Authorizations
7) Show Staffed Agents Count
8) Change Generic-RTA Split(s)/Skill(s) and/or ACD
9) Show Generic-RTA Configuration
Q) Quit
-----
Selection: 1

Current Status of Configured Sessions:
-----
Generic-RTA session 1 is not running.
Generic-RTA session 2 is not running.

Which Generic-RTA session(s) do you want to start?
Input range must be between 1 and 32.
Input entries allowed:
- Enter a single session number (e.g. 5).
- Enter a range of session numbers separated by a dash (e.g. 6-11).
- Enter 'all' or just press Enter to select ALL configured sessions.
- Enter 'q' or 'Q' to quit.
Enter Generic-RTA session(s) to start:1
```

## **7. Configure Inradiem System**

The configuration of Inradiem application is done by a Inradiem technical person and is out of scope of the application note. For more detail of how to configure the Inradiem product, please contact support of Inradiem.

## 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 Main Menu. Verify the status of the connection to Communication Manager by selecting **Maintenance → Connection Status**, and press the Enter key.

```
8/20/21 22:15 Avaya(TM) CMS Windows: 0 of 10 ^
lMainMenuqqqqqqqqqqqqqqqqqqqqqqqqqqqqk
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>lqqqqqqqqqqqqqqqqqqqqqqqqqqk
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
mqqqqqqqqqqqqqqqqqqqx Archiving Status x
x ACD Admin Log Report x
x Error Log Report x
x Firewall Status x
mqqqqqqqqqqqqqqqqqqqj

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** in the right window and press **Enter**.

```
Maintenance: Connection Status                                     All ACDs
                                                                x Find one
                                                                x List all
                                                                x Next
                                                                x Previous
                                                                mqqqqqqqqqqq
ACD(s): 1
Application:
Session:
Connection:
Date/Time:
Errors
```

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
                                                                x List all
                                                                x Next
                                                                x Previous
                                                                mqqqqqqqqqqq
ACD(s): interopcm
Application: data transfer
Session: data transfer           normal
Connection: operational
Date/Time: 8/20/21 10:18 PM
Errors:

1 matches found
```

## 8.2. Verify Real-Time Agent Adapter

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

```
----- Generic-RTA Menu -----
1) Start Generic-RTA Interface
2) Stop Generic-RTA Interface
3) Check Generic-RTA Status
4) View Maintenance Log
5) Show Generic-RTA Version
6) Show/Verify Licensed Authorizations
7) Show Staffed Agents Count
8) Change Generic-RTA Split(s)/Skill(s) and/or ACD
9) Show Generic-RTA Configuration
Q) Quit
-----
Selection: 1
```

Verify that the session is running and is connected.

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

```
Generic-RTA session 1 is running, not encrypted, and connected.
```

```
Press Enter to return to menu:
```

## 9. Conclusion

These Application Notes describe the configuration steps required for Intradiem to interoperate with Avaya Call Management System, via the customized Real-Time Agent data adapter provided by Avaya Professional Services. All feature and serviceability test cases were completed successfully.

## 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 8.1.x, Issue 12, July 2021.

[2] Administering Avaya Aura® Session Manager, Release 8.1.x, Issue 10, September 2021.

[3] Administering Avaya Call Management System, Release 19.1, Issue 1, March 2021

Documentation related to Intradiem may directly be obtained from Intradiem

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