Avaya Solution & Interoperability Test Lab

Application Notes for Geomant Data Collaborator Version 1.0 with Avaya Aura® Communication Manager Release 8.1.3 and Avaya Call Management System Release 19.2 using Real-Time Socket Interface – Issue 1.0

Abstract

These Application Notes describe the configuration steps required to integrate Geomant Data Collaborator with Avaya Call Management System using the Real-Time Socket interface to capture ACD call center data from Avaya Aura® Communication Manager. The Real-Time Socket (RT_Socket) interface is used to obtain real-time data for splits/skills, Vector Directory Numbers (VDNs), and agents. This interface is provided by Avaya Professional Services.

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 DevConnect 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 to integrate Geomant Data Collaborator (Data Collaborator) with Avaya Call Management System (CMS) using the Real-Time Socket interface to capture ACD call center data from Avaya Aura® Communication Manager (Communication Manager). The Real-Time Socket (RT_Socket) interface is used to obtain real-time data for splits/skills, Vector Directory Numbers (VDNs), and agents. This interface is provided by Avaya Professional Services.

Data Collaborator is a platform that supports the integration, management, and delivery of real-time data. Data Collaborator utilizes the real-time call center data from Communication Manager for splits/skills, VDNs, and agents, and provides the information to applications or contact center organizations for effective management.

The real-time data streams of ACD call center data are obtained by Data Collaborator from CMS. A TCP client-server model is used for the connection, with CMS being the "client" and Data Collaborator being the "server". Data Collaborators' Data Source Manager runs a TCP listener process to accept the data connection from the RT_Socket interface of CMS.

Avaya Professional Service installs and configures the RT_Socket interface on CMS, and provides the TCP port number associated with each RT_Socket session to Geomant for configuring Data Collaborator. Data Collaborator parses the raw data streams received and makes the data available on various output devices. The real-time data can be monitored by customers via customized viewing models.

2. General Test Approach and Test Results

The feature test cases were performed manually. Incoming calls were made to the monitored ACD/Skill and VDN groups to enable data streams to be sent to Data Collaborator. Manual call controls and work mode changes from the Agent telephones were exercised as necessary to populate specific fields in the data streams.

The serviceability test cases were performed manually by stopping and restarting the RT_Socket interface, and by disconnecting and reconnecting network connection to the Data Collaborator server.

The verification of all tests included checking of proper display of real-time data at the Data Collaborator server, and comparing the displayed data with the real-time reports from the CMS server.

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 only (private network side). 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 Data Collaborator did not include use of any specific encryption features as requested by Geomant.

2.1. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing. The feature testing focused on verifying Data Collaborator parsing and displaying of ACD/Skill, VDN, and Agent data from CMS.

The serviceability testing focused on verifying the ability of Data Collaborator to recover from adverse conditions, such as restarting the RT_Socket interface and network unavailability.

2.2. Test Results

The test objectives listed in **Section 2.1** were verified and all test cases were executed and passed.

2.3. Support

Contact Geomant for technical support via the following means:

- **Web:** https://www.geomant.com/
- **Phone:** 1-800-637-1077; select option 2 for Technical Support
- **Email:** inova_support@geomant.com

3. Reference Configuration

Figure 1 illustrates the configuration used for compliance testing. The network consisted of Communication Manager, Avaya CMS and Data Collaborator server running on a virtualized environment. The Avaya side equipment included Communication Manager, Session Manager, CMS, Media Server, G450 Media Gateway, Session Border Controller for Enterprise, and several IP phones. All calls to and from the public network were routed through Avaya Session Border Controller for Enterprise via SIP trunks.

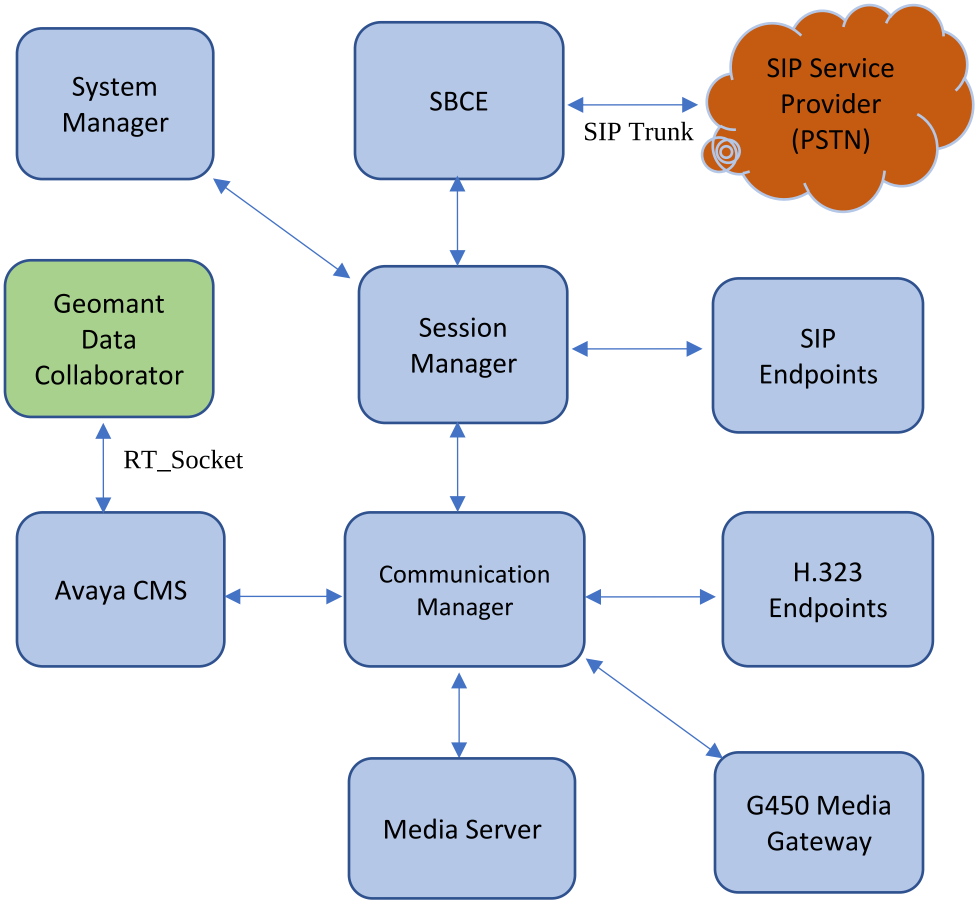


Figure 1: Network Configuration

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 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 running on Virtual Environment • Real-Time Socket Version	19.2 4.5.19
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 (H.323 and SIP)	2.0.6.0.10
Avaya 9641G IP Deskphone (H.323)	6.8304
Geomant Data Collaborator	1.0

5. Configure Avaya Aura® Communication Manager

This section describes the steps required for Communication Manager to support the configuration in **Figure 1**. The following pages provide step-by-step instructions on how to administer parameters specific to the Data Collaborator solution only. The assumption is that the appropriate license and authentication files have been installed on the servers and that login and password credentials are available and that the reader has a basic understanding of the administration of Communication Manager. It is assumed that all other connections, (e.g., to PSTN, to LAN) are configured and will not be covered in this document. The reader will need access to the System Access Terminal (SAT). For detailed information on the installation, maintenance, and configuration of Communication Manager, please refer to **Error! Reference source not found.**.

This section provides the procedures for configuring Communication Manager. The procedures include the following areas:

- Verify Communication Manager Options
- Administer adjunct CMS release
- Administer processor interface channel
- Administer measured VDN
- Administer measured Skill

The detailed administration of contact center devices such as ACD/Skill, VDN, Vector, and Agents are assumed to be in place. These Application Notes will only cover how to enable ACD/Skill, VDN, and Agent data to be sent to Avaya CMS.

5.1. Verify Avaya Aura® Communication Manager Software Options

Log into the System Access Terminal (SAT) to verify that the Communication Manager license has proper permissions for features illustrated in these Application Notes. Use the “display system-parameters customer-options” command to verify that the **G3 Version** field is set to “V18” on **Page 1**, as shown below.

```
display system-parameters customer-options                    Page   1 of  12
                                OPTIONAL FEATURES

     G3 Version: V18                                 Software Package: Enterprise
       Location: 2                                    System ID (SID): 1
       Platform: 28                                   Module ID (MID): 1

                                                               USED
                                Platform Maximum Ports:  81000    178
                                      Maximum Stations:  41000     48
                              Maximum XMOBILE Stations:  41000      0
                    Maximum Off-PBX Telephones - EC500:  41000      0
                    Maximum Off-PBX Telephones -   OPS:  41000     20
                    Maximum Off-PBX Telephones - PBFMC:  41000      0
                    Maximum Off-PBX Telephones - PVFMC:  41000      0
                    Maximum Off-PBX Telephones - SCCAN:      0      0
                         Maximum Survivable Processors:  313        1


        (NOTE: You must logoff & login to effect the permission changes.)
```

Navigate to **Page 6**, and verify that the **Call Center Release** field is set to “8.0”, as shown below.

```
display system-parameters customer-options                    Page   7 of  12
                         CALL CENTER OPTIONAL FEATURES

                          Call Center Release: 8.0

                                ACD? y                          Reason Codes? y
                        BCMS (Basic)? y                Service Level Maximizer? n
          BCMS/VuStats Service Level? y              Service Observing (Basic)? y
  BSR Local Treatment for IP & ISDN? y     Service Observing (Remote/By FAC)? y
                   Business Advocate? n              Service Observing (VDNs)? y
                     Call Work Codes? y                             Timed ACW? y
       DTMF Feedback Signals For VRU? y                     Vectoring (Basic)? y
                   Dynamic Advocate? n                  Vectoring (Prompting)? y
      Expert Agent Selection (EAS)? y               Vectoring (G3V4 Enhanced)? y
                            EAS-PHD? y                Vectoring (3.0 Enhanced)? y
                   Forced ACD Calls? n     Vectoring (ANI/II-Digits Routing)? y
               Least Occupied Agent? y     Vectoring (G3V4 Advanced Routing)? y
          Lookahead Interflow (LAI)? y                       Vectoring (CINFO)? y
Multiple Call Handling (On Request)? y      Vectoring (Best Service Routing)? y
    Multiple Call Handling (Forced)? y                    Vectoring (Holidays)? y
  PASTE (Display PBX Data on Phone)? y                   Vectoring (Variables)? y
        (NOTE: You must logoff & login to effect the permission changes.)
```

Note: Values used were specific to this Compliance Test. When integrating with other releases please use the Version information provided for that release.

5.2. Administer Adjunct CMS Release

Use the “change system-parameters features” command and navigate to **Page 12**. Set the **Reporting Adjunct Release** field for **CMS** to the software release of Avaya CMS. In this case, “R18.1/R19.0” is used to correspond to Avaya CMS software release R19.2.

```
change system-parameters features                               Page  12 of  19
                        FEATURE-RELATED SYSTEM PARAMETERS
  AGENT AND CALL SELECTION
                         MIA Across Splits or Skills? n
                          ACW Agents Considered Idle? y
                    AUX Agents Considered Idle (MIA)? n
                      AUX Agent Remains in LOA Queue? n
                          Call Selection Measurement: current-wait-time
    Service Level Supervisor Call Selection Override? n
                                 Auto Reserve Agents: none
       Block Hang-up by Logged-in Auto-Answer Agents? n
  CALL MANAGEMENT SYSTEM
     REPORTING ADJUNCT RELEASE (determines protocol used by appl link)
                                       CMS (appl mis): R18.1/R19.0
                                  AAPC/IQ (appl ccr):

                               BCMS/VuStats LoginIDs? y
                   BCMS/VuStats Measurement Interval: hour
           BCMS/VuStats Abandon Call Timer (seconds):
                     Validate BCMS/VuStats Login IDs? n
                            Clear VuStats Shift Data: on-login
                 Remove Inactive BCMS/VuStats Agents? n
```

5.3. Administer Node Name

Add an IP Address entry in the node names forum with the “change node-names ip” command.

```
change node-names ip                                            Page   1 of   2
                                  IP NODE NAMES
    Name              IP Address
AMS1                10.33.1.30
default             0.0.0.0
interopASM          10.33.1.12
interopCM           10.33.1.6
interopcms          10.33.1.19
loopback            10.33.1.6
```

5.4. Administer Processor Interface Channel

Assign a new processor interface channel with the “change communication-interface processor-channels” command. Add an entry with the following values, and submit these changes.

- **Enable:** “y”
- **Appl.:** “mis”
- **Mode:** “s” for server mode.
- **Interface Link:** “pv4”
- **Interface Chan:** TCP channel number for Avaya CMS. In this case “5001”.
- **Destination Node:** The node name configured in previous section
- **Destination Port:** “0”
- **Session Local:** **Local Session ID** for the connection to CMS. In this case “1”
- **Session Remote:** **Remote Session ID** for the connection to CMS. In this case “1”

The **Interface Chan** field contains Avaya CMS TCP channel number, which is defined as part of Avaya CMS installation. For the compliance testing, the TCP channel number of **“5001”** was used.

```
change communication-interface processor-channels               Page   1 of  24

                        PROCESSOR CHANNEL ASSIGNMENT
Proc                 Gtwy      Interface        Destination      Session   Mach
Chan Enable   Appl.   To  Mode Link/Chan          Node       Port  Local/Remote ID
  1:   y    mis            s    pv4 5001  interopcms       0      1     1
  2:   n                                                   0
```

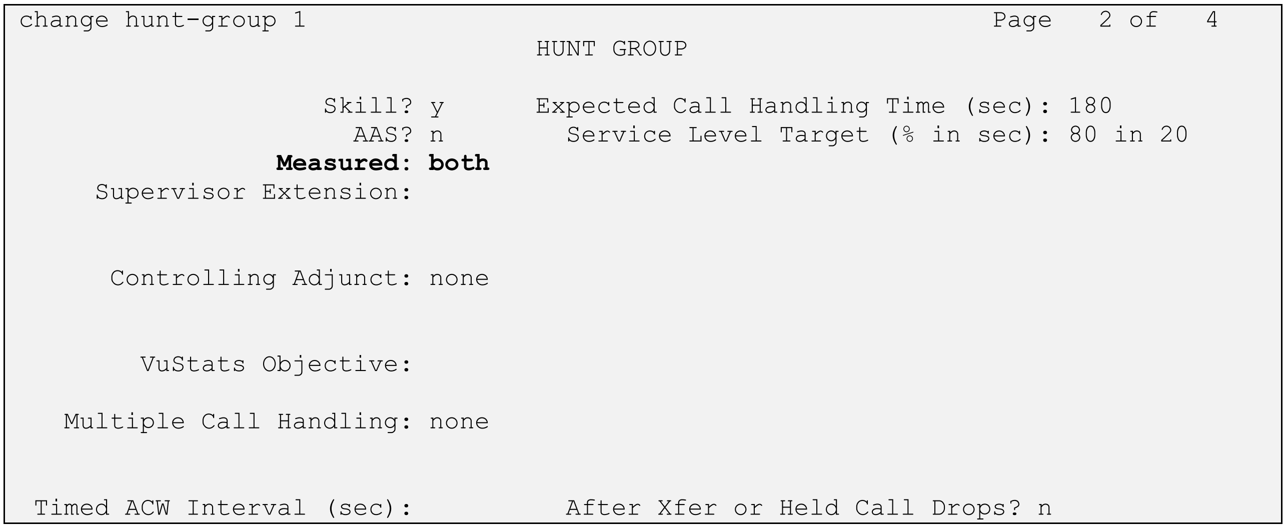
5.5. Administer Measured VDN

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

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

                             Extension: 3340                     Unicode Name? n
                                 Name*: Contact Center 1
                           Destination: Vector Number        12
                   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*:

SIP URI:

* Follows VDN Override Rules
```

5.6. Administer Measured Skill

Use the “change hunt-group n” command, where “n” is the extension of the ACD/Skill group number to be measured by Avaya CMS. On **Page 2** set the **Measured** field to “external” or “both” to enable real-time measurement data on the ACD/Skill group and the associated agents to be sent to Avaya CMS. Repeat this step for all ACD/Skill groups that will be measured by Avaya CMS.

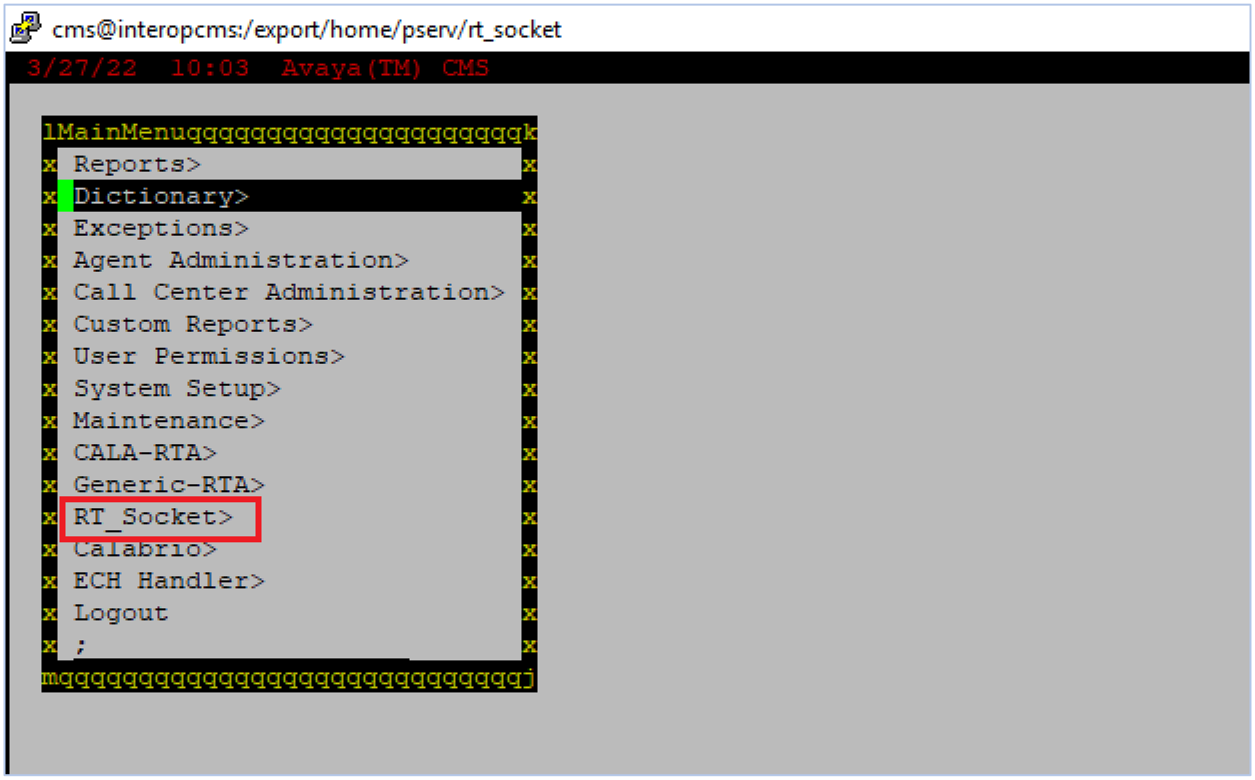


```
change hunt-group 1                                            Page   2 of   4
                                  HUNT GROUP

                    Skill? y      Expected Call Handling Time (sec): 180
                      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):          After Xfer or Held Call Drops? n
```

6. Configure Avaya Call Management System

Configuration of the RT_Socket interface is performed by Avaya APS and is outside the scope of these Application Notes. After the interfaces are configured, the user can follow the procedures below to enable the interface.

Use a terminal emulator to connect to Avaya CMS, and log in with the proper credentials. The **Main Menu** is displayed. Select **RT_Socket** from the screen below.



```
cms@interopcms:/export/home/pserv/rt_socket
3/27/22  10:03  Avaya(TM) CMS

lMainMenuqqqqqqqqqqqqqqqqqqqqqqk
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 Calabrio>                     x
x ECH Handler>                  x
x Logout                        x
x ;                             x
mqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqj
```

Select the option **9** to show the current configuration of the RT_Socket.

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

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

The **Current Configuration** section displays the session ID, ACD number, destination IP, port and report name. Press **Enter** to return to the RT_Socket menu.

```
                            Current Configuration

Package: RT_Socket

   NOTE: Sessions with incomplete settings in the rta.conf
         file will not be displayed.

SESSION   ACD   DEST IP          PORT   REPORT NAME      MONITORED SKILLS
--------------------------------------------------------------------------
1         1     10.33.1.80       7010   tvi1             1-2000
2         1     10.33.1.80       7020   vdnrpt           1-2000
3         1     10.33.1.80       7030   inova_agent      1-2000

Press Enter to return to menu:
```

The RT_Socket interface needs to be stopped and restarted. Enter “2” to stop the interface, followed by the **Enter** key.

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

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

Enter the session ID from 1-3 as configured for Data Collaborator to stop the sessions. Press **Enter** to return to the RT_Socket menu.

```
Which RT_Socket session(s) do you want to stop?
  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 RT_Socket session(s) to stop: 1-3
Stopping session(s):  1 2 3
Stopping RT_Socket interface session 1. Please wait ...
Stopping RT_Socket interface session 2. Please wait ...
Stopping RT_Socket interface session 3. Please wait ...
Waiting for processes to settle ...

Press Enter to return to menu:
```

Enter “1” to start the interface, and followed by entering the session ID from 1-3 to start the sessions.

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

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


Current Status of Configured Sessions:
--------------------------------------
RT_Socket session 1 is not running.
RT_Socket session 2 is not running.
RT_Socket session 3 is not running.

Which RT_Socket 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 RT_Socket session(s) to start: 1-3
Starting session(s):  1 2 3

Starting RT_Socket session 1, please wait ...
Starting RT_Socket session 2, please wait ...
Starting RT_Socket session 3, please wait ...

Press Enter to return to menu:
```

7. Configure Geomant Data Collaborator

This section provides the procedures for configuring Data Collaborator. The procedures fall into the following areas:

- Administer RT_Socket interface for Skill data
- Administer RT_Socket interface for VDN data
- Administer RT_Socket interface for Agent data

Configuration of Data Collaborator is typically performed by Geomant technicians.

For administering the Skill, VND and Agent data is done via the **ConfigService** component. The **ConfigService** can be accessed over a URL that is used to administer RT Socket connectors and streams over a Swagger API. For configuring an RT Socket connector and stream requires the following information to be provided:

- **Connector**
  - **id**: Unique ID for the connector
  - **name**: Display name for the connector
  - **listeningPort**: The port which Avaya CMS sends the data, the Connector will be listening on this port
  - **streamIds**: List of stream Id's that is configured under this connector. The default value is empty list ([])
  - **destinationUri**: The Nifi url where the Connector will be sending the data. The path is defined in the Nifi ListenHttp block. The default value is http://localhost:9696/contentListener
  - **rowHeader**: The first field in the RT Socket stream - Used to identify a new line / type of data (e.g., Skill, Agent or VDN)
  - **fieldDelimiter**: The field delimiter, how the CMS sends the row data over RT Socket
  - **endOfRecords**: A special line that Avaya CMS sends as end of stream. Used to identify that all the records received from the CMS over RT Socket
- **Stream**
  - **id**: Unique ID for the stream
  - **name**: Display name for the stream
  - **connectorId**: The Id of the Connector the Stream takes data from. This can be retrieved from the same swagger API using the GET /api/Config /GetAllConnectors endpoint
  - **initialSteps**: List of steps to perform on the incoming data before passing it on to the Flows that use this stream

The **Portal** provides a UI that can be accessed over a URL for viewing the configuration of the RT Socket connectors, streams and applying certain changes to the incoming data.

7.1. Administer RT_Socket interface for Skill Data

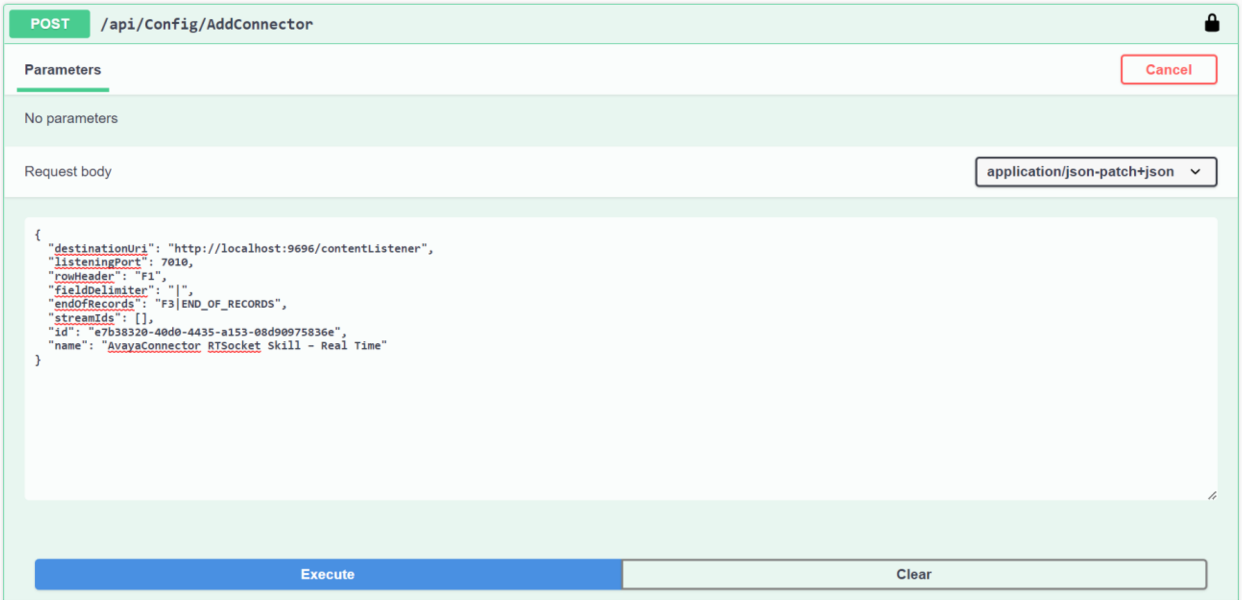
Configure a connector and stream for the RT Socket Skill data.

7.1.1. Add Skill Connector

Setting up an RT Socket Skill Connector is done through the **ConfigService** Swagger API, by accessing the **/api/Config/AddConnector** endpoint.

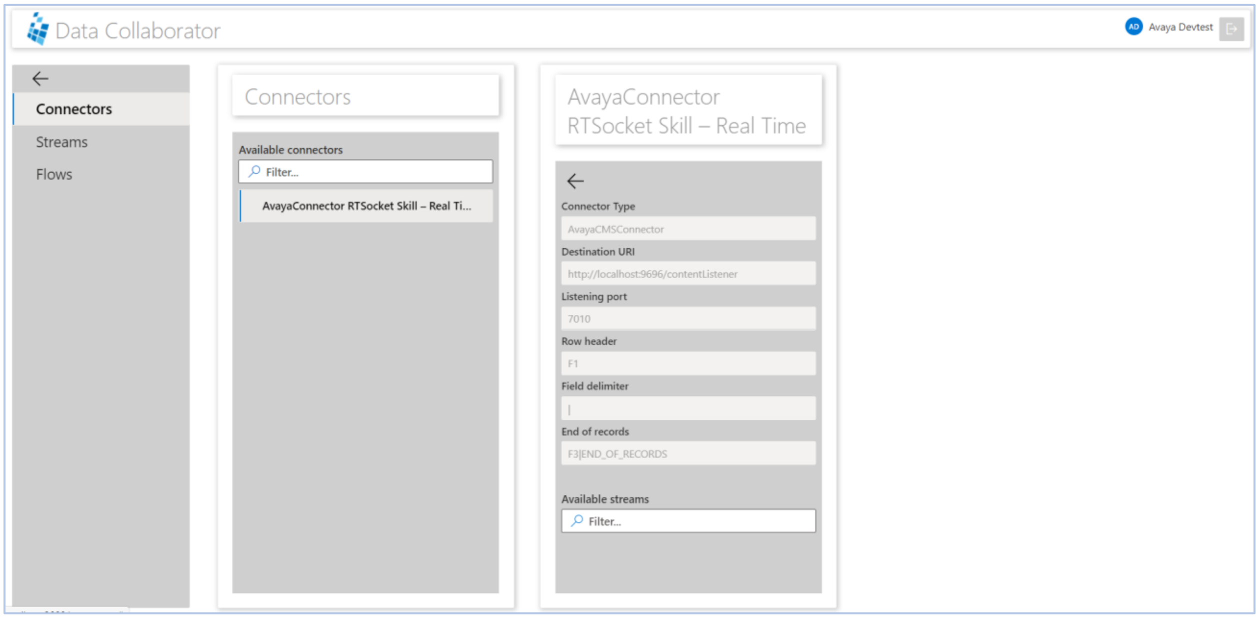
```
{
  "destinationUri": "http://localhost:9696/contentListener",
  "listeningPort": 7010,
  "rowHeader": "F1",
  "fieldDelimiter": "|",
  "endOfRecords": "F3|END_OF_RECORDS",
  "streamIds": [],
  "id": "e7b38320-40d0-4435-a153-08d90975836e",
  "name": "AvayaConnector RTSocket Skill – Real Time"
}
```

Adding an RT Socket Skill Connector by using the **ConfigService /api/Config/AddConnector** endpoint.



```
{
  "destinationUri": "http://localhost:9696/contentListener",
  "listeningPort": 7010,
  "rowHeader": "F1",
  "fieldDelimiter": "|",
  "endOfRecords": "F3|END_OF_RECORDS",
  "streamIds": [],
  "id": "e7b38320-40d0-4435-a153-08d90975836e",
  "name": "AvayaConnector RTSocket Skill - Real Time"
}
```

For viewing the newly created RT Socket Skill Connector configuration, open the **Portal** and select the **Connectors** menu.



Connector Type: AvayaCMSConnector

Destination URI: http://localhost:9696/contentListener

Listening port: 7010

Row header: F1

Field delimiter: |

End of records: F3|END_OF_RECORDS

7.1.2. Add Skill Stream

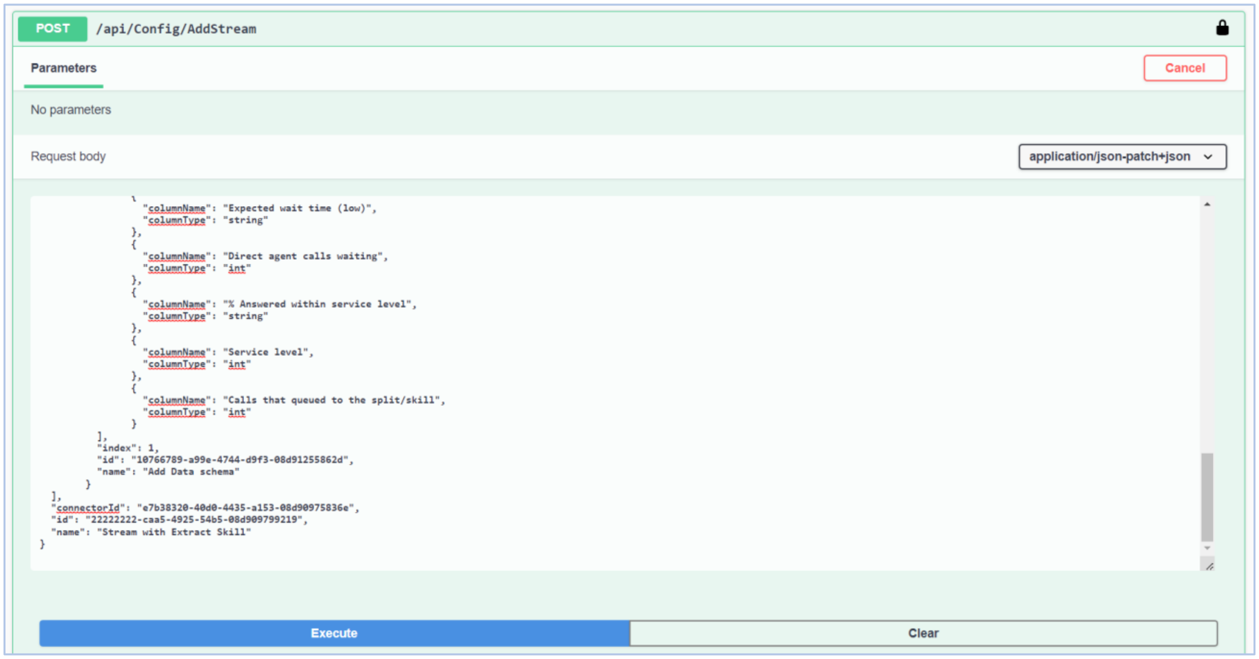
Setting up an RT Socket Skill Connector Stream configuration is done through the **ConfigService** Swagger API, by accessing the **/api/Config/AddStream** endpoint.

```
{
 "initialSteps": [
        {
         "type": "Extract",
         "extractType": "Property",
         "propertyName": "Data",
         "index": 0,
         "id": "3419c88d-a437-44f7-011a-08d97795f631",
         "name": "Extract with Property"
        },
        {
         "type": "AddSchema",
         "dataSchema": [
                {
                 "columnName": "Split/Skill number",
                 "columnType": "int"
                },
                {
                 "columnName": "Calls waiting",
                 "columnType": "int"
```

```
            },
            {
              "columnName": "Agents Available",
              "columnType": "int"
            },
            {
              "columnName": "Avg. speed of answer",
              "columnType": "string"
            },
            {
              "columnName": "Abandon calls",
              "columnType": "int"
            },
            {
              "columnName": "ACD number",
              "columnType": "int"
            },
            {
              "columnName": "Oldest call waiting",
              "columnType": "string"
            },
            {
              "columnName": "ACD calls",
              "columnType": "int"
            },
            {
              "columnName": "Avg. ACD talk time",
              "columnType": "string"
            },
            {
              "columnName": "Avg. time to abandon",
              "columnType": "string"
            },
            {
              "columnName": "Agents: Ringing",
              "columnType": "int"
            },
            {
              "columnName": "Agents: ACD calls",
              "columnType": "int"
            },
            {
              "columnName": "Agents: After call work",
              "columnType": "int"
            },
              {
                "columnName": "Agents: Other",
                "columnType": "int"
              },
              {
                "columnName": "Agents: Aux work",
                "columnType": "int"
              },
              {
                "columnName": "Agents: Staffed",
                "columnType": "int"
              },
              {
                "columnName": "Expected wait time (high)",
                "columnType": "string"
              },
              {
                "columnName": "Expected wait time (medium)",
                "columnType": "string"
              },
              {
                "columnName": "Expected wait time (low)",
                "columnType": "string"
              },
              {
                "columnName": "Direct agent calls waiting",
                "columnType": "int"
              },
              {
                "columnName": "% Answered within service level",
                "columnType": "string"
              },
              {
                "columnName": "Service level",
                "columnType": "int"
              },
              {
                "columnName": "Calls that queued to the split/skill",
                "columnType": "int"
              }
      ],
      "index": 1,
      "id": "10766789-a99e-4744-d9f3-08d91255862d",
      "name": "Add Data schema"
    }
```

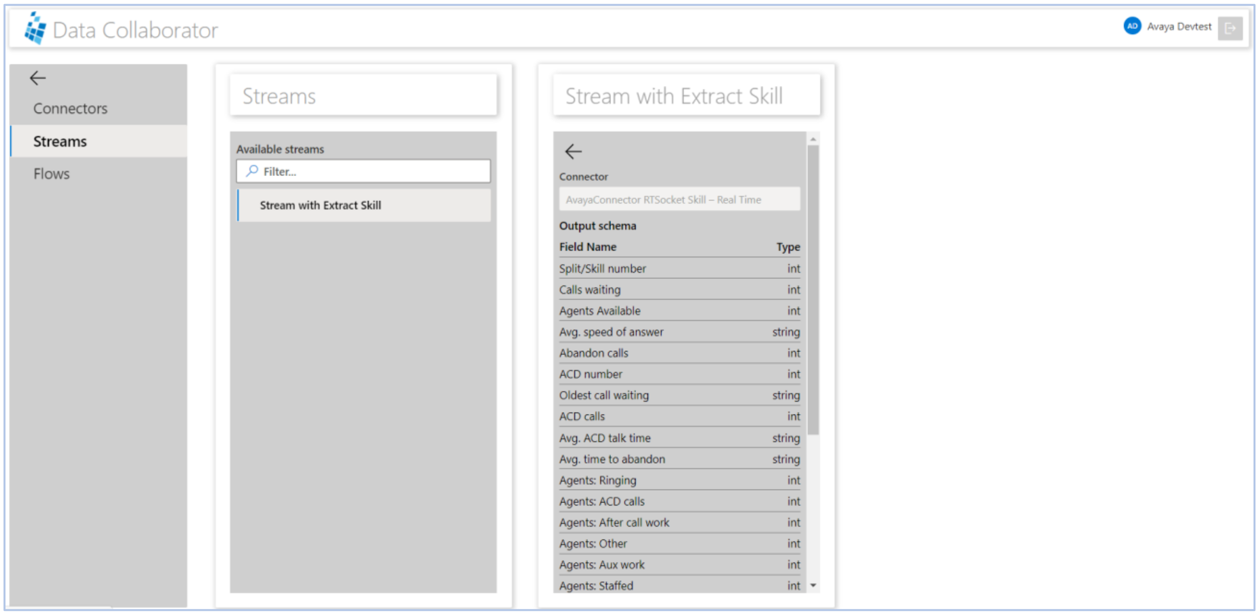
```
 ],
 "connectorId": "e7b38320-40d0-4435-a153-08d90975836e",
 "id": "22222222-caa5-4925-54b5-08d909799219",
 "name": "Stream with Extract Skill"
}
```

Adding an RT Socket Skill Connector Stream by using the **ConfigService /api/Config/AddStream** endpoint.



```
                {
                  "columnName": "Expected wait time (low)",
                  "columnType": "string"
                },
                {
                  "columnName": "Direct agent calls waiting",
                  "columnType": "int"
                },
                {
                  "columnName": "% Answered within service level",
                  "columnType": "string"
                },
                {
                  "columnName": "Service level",
                  "columnType": "int"
                },
                {
                  "columnName": "Calls that queued to the split/skill",
                  "columnType": "int"
                }
            ],
            "index": 1,
            "id": "10766789-a99e-4744-d9f3-08d91255862d",
            "name": "Add Data schema"
          }
    ],
    "connectorId": "e7b38320-40d0-4435-a153-08d90975836e",
    "id": "22222222-caa5-4925-54b5-08d909799219",
    "name": "Stream with Extract Skill"
}
```

For viewing the newly created Skill Stream configuration, open the **Portal** and select the **Streams** menu.



Connector

AvayaConnector RTSocket Skill – Real Time

Output schema

Field Name	Type
Split/Skill number	int
Calls waiting	int
Agents Available	int
Avg. speed of answer	string
Abandon calls	int
ACD number	int
Oldest call waiting	string
ACD calls	int
Avg. ACD talk time	string
Avg. time to abandon	string
Agents: Ringing	int
Agents: ACD calls	int
Agents: After call work	int
Agents: Other	int
Agents: Aux work	int
Agents: Staffed	int

7.2. Administer RT_Socket interface for VDN Data

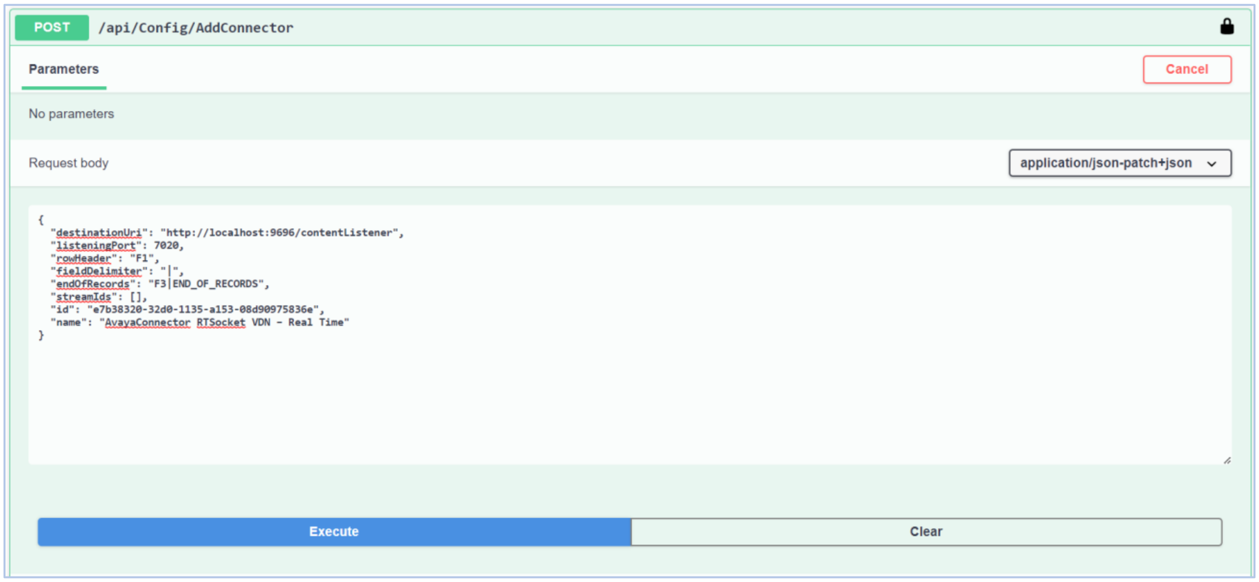
Configure a connector and stream for the RT Socket VDN data.

7.2.1. Add VDN Connector

Setting up an RT Socket VDN Connector is done through the **ConfigService** Swagger API, by accessing the **/api/Config/AddConnector** endpoint.

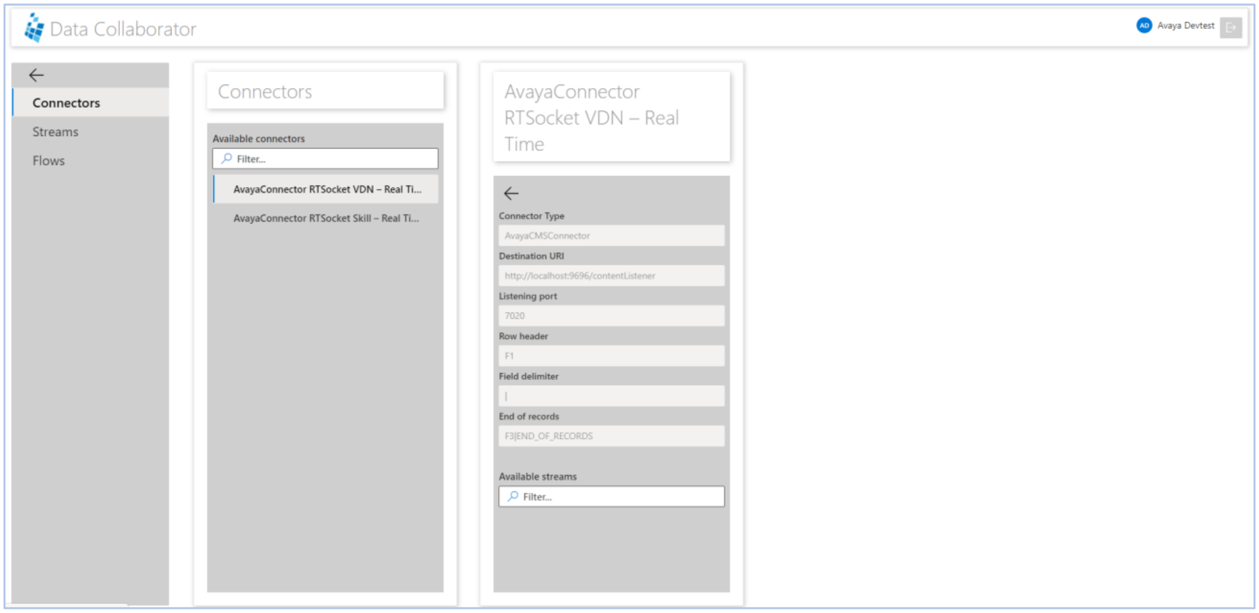
```
{
  "destinationUri": "http://localhost:9696/contentListener",
  "listeningPort": 7020,
  "rowHeader": "F1",
  "fieldDelimiter": "|",
  "endOfRecords": "F3|END_OF_RECORDS",
  "streamIds": [],
  "id": "e7b38320-32d0-1135-a153-08d90975836e",
  "name": "AvayaConnector RTSocket VDN – Real Time"
}
```

Adding an RT Socket VDN Connector by using the **ConfigService /api/Config/AddConnector** endpoint.



```
{
  "destinationUri": "http://localhost:9696/contentListener",
  "listeningPort": 7020,
  "rowHeader": "F1",
  "fieldDelimiter": "|",
  "endOfRecords": "F3|END_OF_RECORDS",
  "streamIds": [],
  "id": "e7b38320-32d0-1135-a153-08d90975836e",
  "name": "AvayaConnector RTSocket VDN - Real Time"
}
```

For viewing the newly created RT Socket VDN Connector configuration, open the **Portal** and select the **Connectors** menu.


Data Collaborator
AD Avaya Devtest
Connectors
Streams
Flows
Connectors
Available connectors
Filter...
AvayaConnector RTSocket VDN – Real Ti...
AvayaConnector RTSocket Skill – Real Ti...
AvayaConnector RTSocket VDN – Real Time
Available streams
Filter...

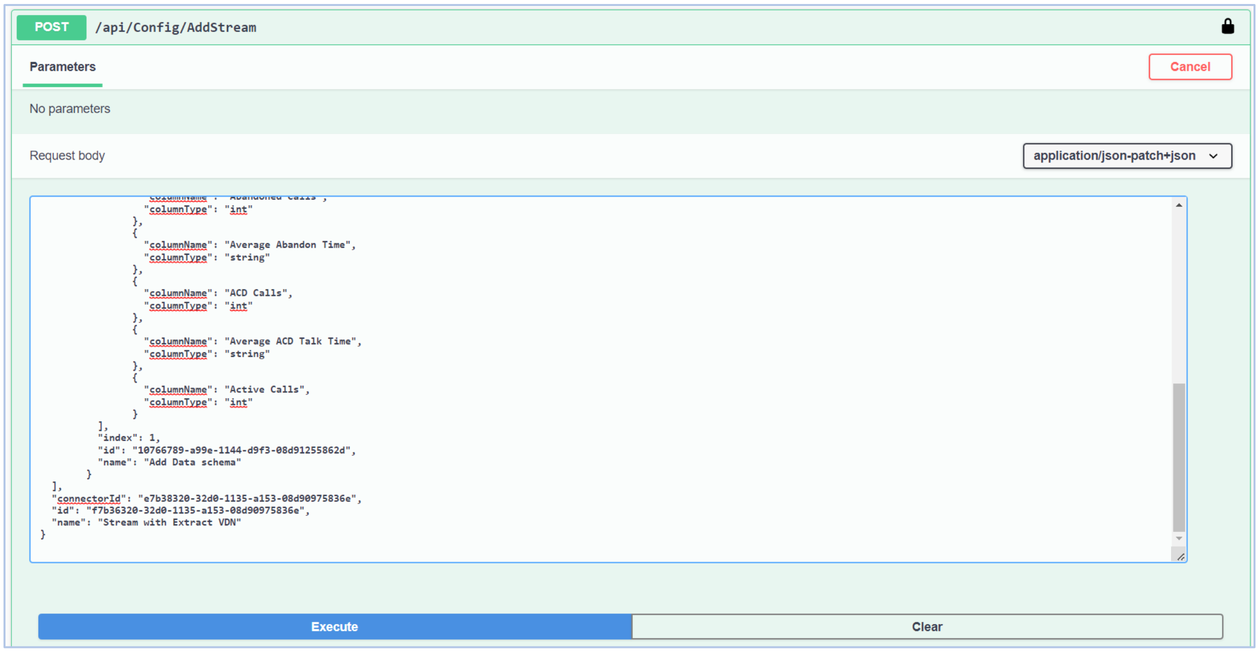
Connector Type: AvayaCMSConnector
Destination URI: http://localhost:9696/contentListener
Listening port: 7020
Row header: F1
Field delimiter: |
End of records: F3|END_OF_RECORDS

7.2.2. Add VDN Stream

Setting up an RT Socket VDN Connector Stream configuration is done through the **ConfigService** Swagger API, by accessing the **/api/Config/AddStream** endpoint.

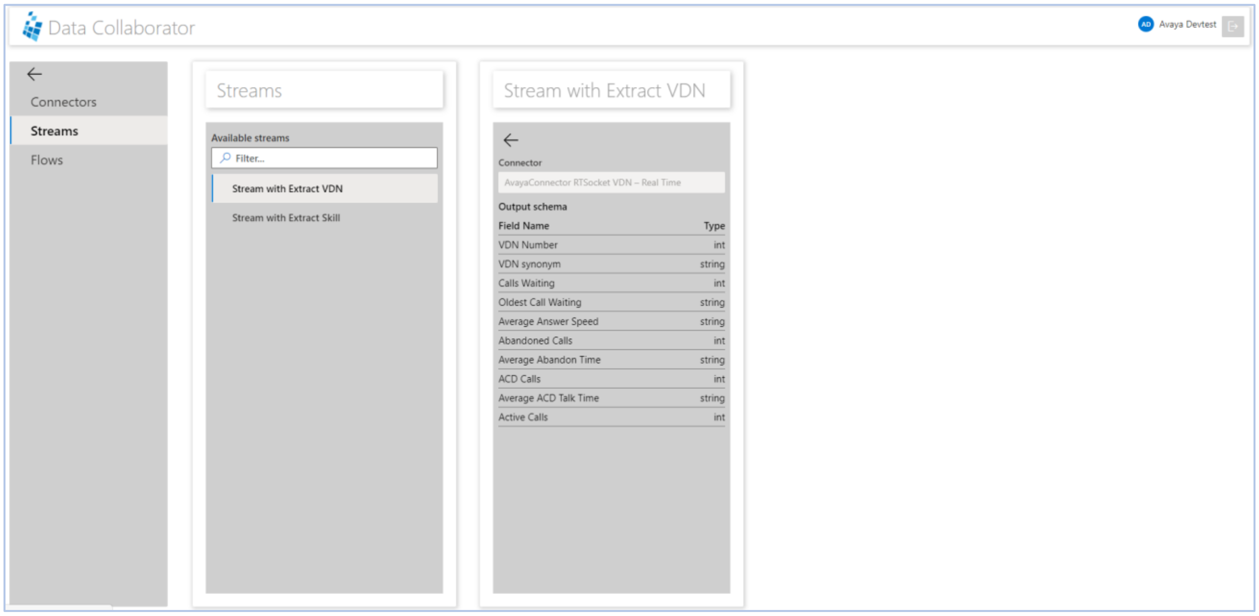
```
{
 "initialSteps": [
        {
         "type": "Extract",
         "extractType": "Property",
         "propertyName": "Data",
         "index": 0,
         "id": "3419c44d-a437-87f7-001a-08d97795f631",
         "name": "Extract with Property"
        },
        {
         "type": "AddSchema",
         "dataSchema": [
                {
                 "columnName": "VDN Number",
                 "columnType": "int"
                },
                {
                 "columnName": "VDN synonym",
                 "columnType": "string"
                },
                {
                 "columnName": "Calls Waiting",
                 "columnType": "int"
                },
                {
                 "columnName": "Oldest Call Waiting",
                 "columnType": "string"
                },
                {
                 "columnName": "Average Answer Speed",
                 "columnType": "string"
                },
                {
                 "columnName": "Abandoned Calls",
                 "columnType": "int"
                },
                {
                 "columnName": "Average Abandon Time",
                 "columnType": "string"
                },
                {
                  "columnName": "ACD Calls",
                  "columnType": "int"
                },
                {
                  "columnName": "Average ACD Talk Time",
                  "columnType": "string"
                },
                {
                  "columnName": "Active Calls",
                  "columnType": "int"
                }
          ],
          "index": 1,
          "id": "10766789-a99e-1144-d9f3-08d91255862d",
          "name": "Add Data schema"
        }
  ],
  "connectorId": "e7b38320-32d0-1135-a153-08d90975836e",
  "id": "f7b36320-32d0-1135-a153-08d90975836e",
  "name": "Stream with Extract VDN"
}
```

Adding an RT Socket VDN Connector Stream by using the **ConfigService /api/Config/AddStream** endpoint.



```
                  "columnName": "Abandoned Calls",
                  "columnType": "int"
                },
                {
                  "columnName": "Average Abandon Time",
                  "columnType": "string"
                },
                {
                  "columnName": "ACD Calls",
                  "columnType": "int"
                },
                {
                  "columnName": "Average ACD Talk Time",
                  "columnType": "string"
                },
                {
                  "columnName": "Active Calls",
                  "columnType": "int"
                }
          ],
          "index": 1,
          "id": "10766789-a99e-1144-d9f3-08d91255862d",
          "name": "Add Data schema"
        }
  ],
  "connectorId": "e7b38320-32d0-1135-a153-08d90975836e",
  "id": "f7b36320-32d0-1135-a153-08d90975836e",
  "name": "Stream with Extract VDN"
}
```

For viewing the newly created VDN Stream configuration, open the **Portal** and select the **Streams** menu.



Connector

AvayaConnector RTSocket VDN – Real Time

Output schema

Field Name	Type
VDN Number	int
VDN synonym	string
Calls Waiting	int
Oldest Call Waiting	string
Average Answer Speed	string
Abandoned Calls	int
Average Abandon Time	string
ACD Calls	int
Average ACD Talk Time	string
Active Calls	int

7.3. Administer RT_Socket interface for Agent Data

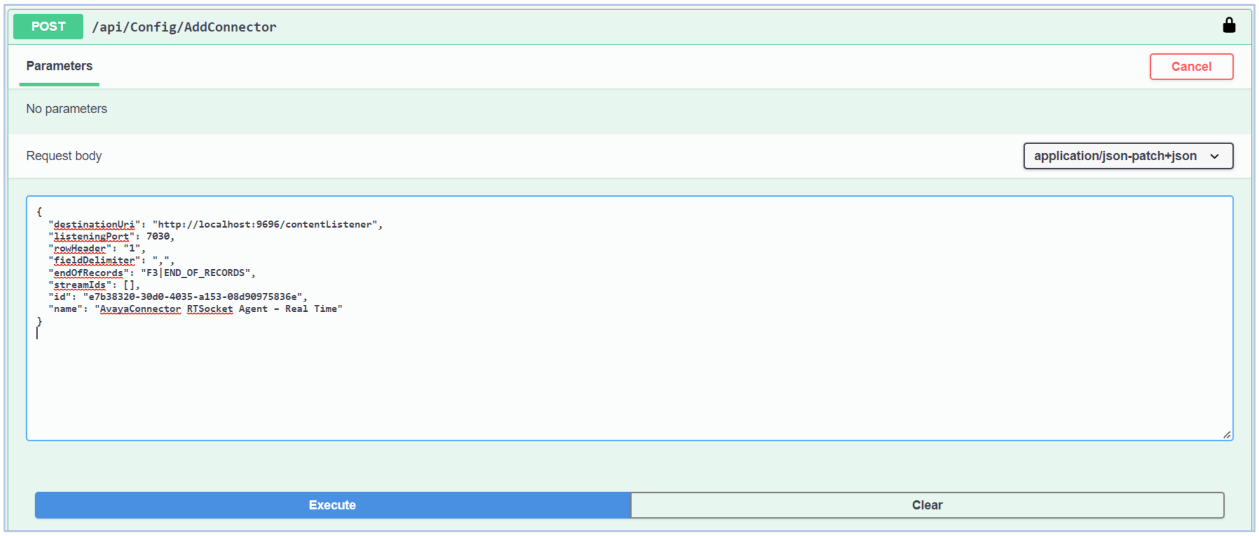
Configure a connector and stream for the RT Socket Agent data.

7.3.1. Add Agent Connector

Setting up an RT Socket Agent Connector is done through the **ConfigService** Swagger API, by accessing the **/api/Config/AddConnector** endpoint.

```
{
  "destinationUri": "http://localhost:9696/contentListener",
  "listeningPort": 7030,
  "rowHeader": "1",
  "fieldDelimiter": ",",
  "endOfRecords": "F3|END_OF_RECORDS",
  "streamIds": [],
  "id": "e7b38320-30d0-4035-a153-08d90975836e",
  "name": "AvayaConnector RTSocket Agent – Real Time"
}
```

Adding an RT Socket Agent Connector by using the **ConfigService /api/Config/AddConnector** endpoint.

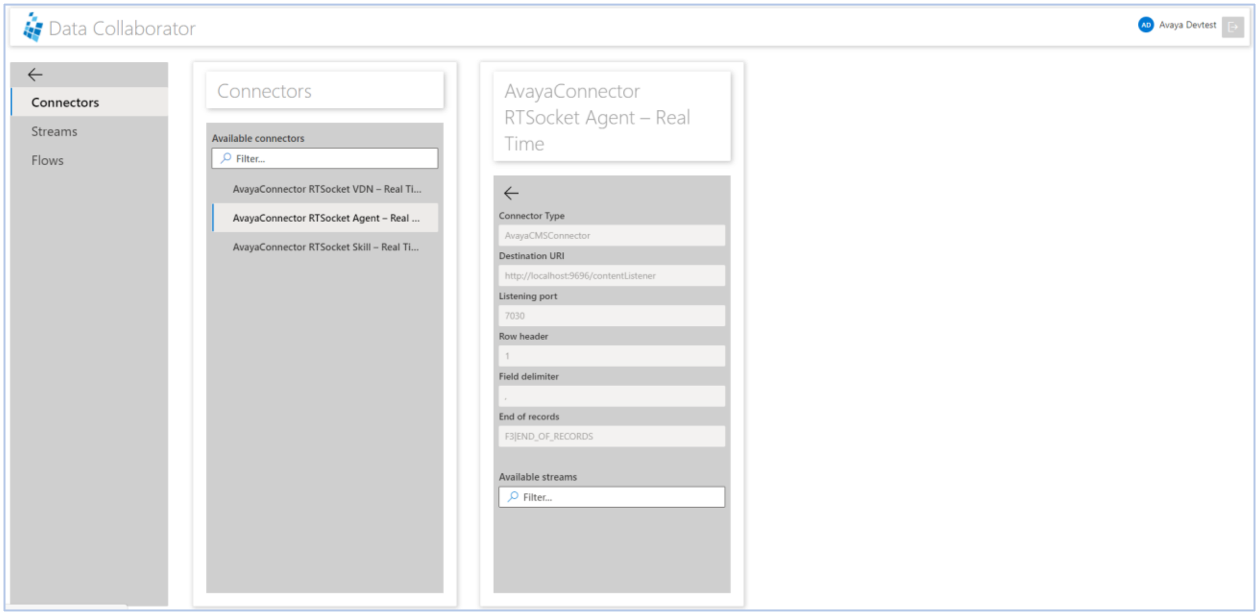


No parameters

Request body: application/json-patch+json

```
{
  "destinationUri": "http://localhost:9696/contentListener",
  "listeningPort": 7030,
  "rowHeader": "1",
  "fieldDelimiter": ",",
  "endOfRecords": "F3|END_OF_RECORDS",
  "streamIds": [],
  "id": "e7b38320-30d0-4035-a153-08d90975836e",
  "name": "AvayaConnector RTSocket Agent - Real Time"
}
```

For viewing the newly created RT Socket Agent Connector configuration, open the **Portal** and select the **Connectors** menu.


Data Collaborator
Avaya Devtest
Connectors
Streams
Flows
Connectors
Available connectors
Filter...
AvayaConnector RTSocket VDN – Real Ti...
AvayaConnector RTSocket Agent – Real ...
AvayaConnector RTSocket Skill – Real Ti...
AvayaConnector RTSocket Agent – Real Time
Available streams
Filter...

Connector Type: AvayaCMSConnector

Destination URI: http://localhost:9696/contentListener

Listening port: 7030

Row header: 1

Field delimiter: ,

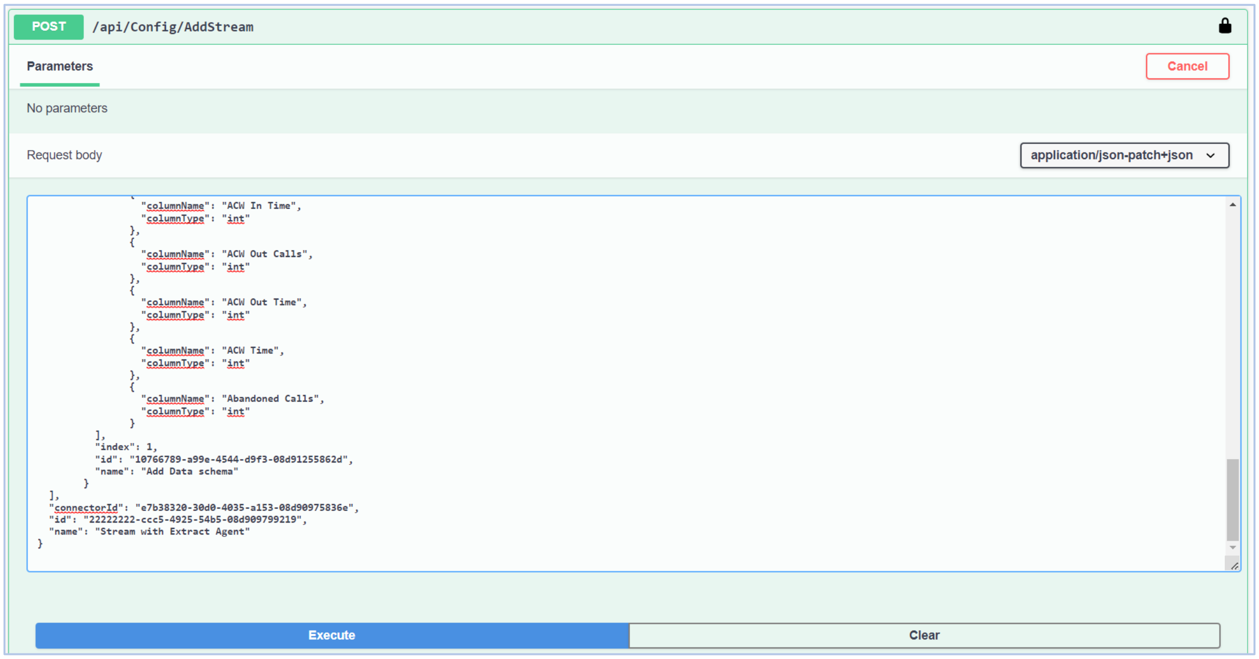
End of records: F3|END_OF_RECORDS

7.3.2. Add Agent Stream

Setting up an RT Socket Agent Connector Stream configuration is done through the **ConfigService** Swagger API, by accessing the **/api/Config/AddStream** endpoint.

```
{
 "initialSteps": [
        {
          "type": "Extract",
          "extractType": "Property",
          "propertyName": "Data",
          "index": 0,
          "id": "3419c44d-a437-44f7-011a-08d97795f631",
          "name": "Extract with Property"
        },
        {
          "type": "AddSchema",
          "dataSchema": [
                {
                  "columnName": "Log ID",
                  "columnType": "int"
                },
                {
                  "columnName": "Skill",
                  "columnType": "int"
                },
                {
                  "columnName": "Workmode",
                  "columnType": "int"
                },
                {
                  "columnName": "Direction",
                  "columnType": "int"
                },
                {
                  "columnName": "Duration",
                  "columnType": "int"
                },
                {
                  "columnName": "Worksplit",
                  "columnType": "int"
                },
                {
                  "columnName": "ACD Calls",
                  "columnType": "int"
                },
                {
                  "columnName": "ACD Time",
                  "columnType": "int"
                },
                {
                  "columnName": "Hold Time",
                  "columnType": "int"
                },
                {
                  "columnName": "Available Time",
                  "columnType": "int"
                },
                {
                  "columnName": "AUX Time",
                  "columnType": "int"
                },
                {
                  "columnName": "Staff Time",
                  "columnType": "int"
                },
                {
                  "columnName": "Agent Time",
                  "columnType": "int"
                },
                {
                  "columnName": "Start Time",
                  "columnType": "int"
                },
                {
                  "columnName": "AUX Reason",
                  "columnType": "string"
                },
                {
                  "columnName": "AUX In Calls",
                  "columnType": "int"
                },
                {
                  "columnName": "AUX In Time",
                  "columnType": "int"
                },
                {
                  "columnName": "AUX Out Calls",
                  "columnType": "int"
                },
                             {
                              "columnName": "AUX Out Time",
                              "columnType": "int"
                             },
                             {
                              "columnName": "ACW In Calls",
                              "columnType": "int"
                             },
                             {
                              "columnName": "ACW In Time",
                              "columnType": "int"
                             },
                             {
                              "columnName": "ACW Out Calls",
                              "columnType": "int"
                             },
                             {
                              "columnName": "ACW Out Time",
                              "columnType": "int"
                             },
                             {
                              "columnName": "ACW Time",
                              "columnType": "int"
                             },
                             {
                              "columnName": "Abandoned Calls",
                              "columnType": "int"
                             }
                       ],
                       "index": 1,
                       "id": "10766789-a99e-4544-d9f3-08d91255862d",
                       "name": "Add Data schema"
                      }
                 ],
                 "connectorId": "e7b38320-30d0-4035-a153-08d90975836e",
                 "id": "22222222-ccc5-4925-54b5-08d909799219",
                 "name": "Stream with Extract Agent"
                }
```

Adding an RT Socket Agent Connector Stream by using the **ConfigService /api/Config/AddStream** endpoint.

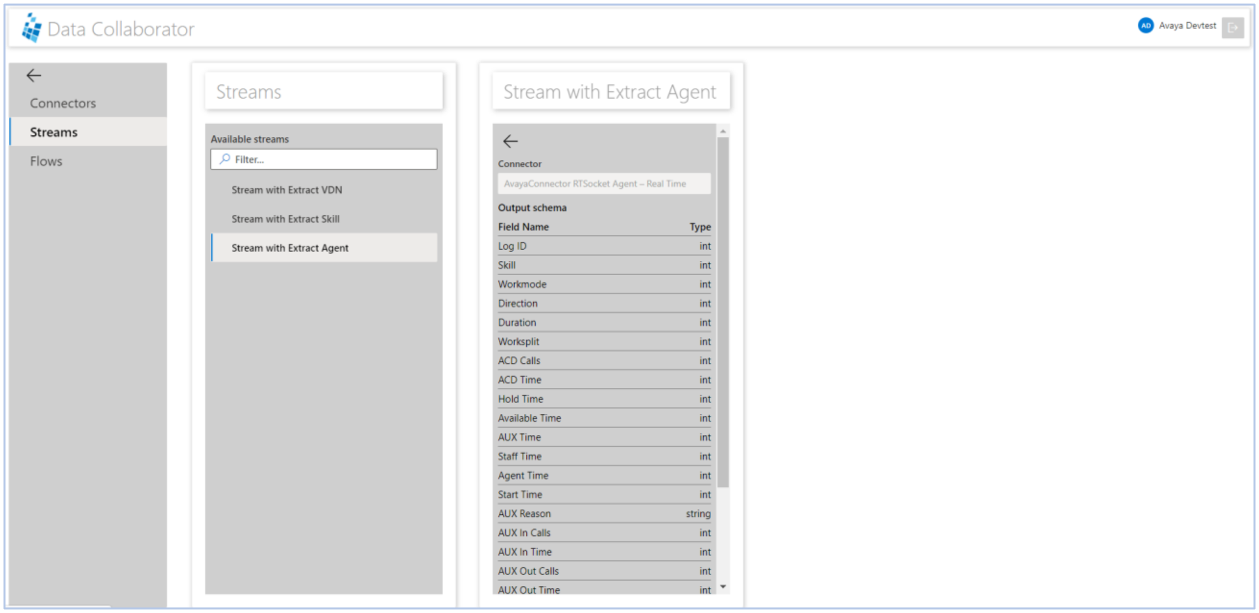


No parameters

Request body

```
                "columnName": "ACW In Time",
                "columnType": "int"
              },
              {
                "columnName": "ACW Out Calls",
                "columnType": "int"
              },
              {
                "columnName": "ACW Out Time",
                "columnType": "int"
              },
              {
                "columnName": "ACW Time",
                "columnType": "int"
              },
              {
                "columnName": "Abandoned Calls",
                "columnType": "int"
              }
          ],
          "index": 1,
          "id": "10766789-a99e-4544-d9f3-08d91255862d",
          "name": "Add Data schema"
        }
    ],
    "connectorId": "e7b38320-30d0-4035-a153-08d90975836e",
    "id": "22222222-ccc5-4925-54b5-08d909799219",
    "name": "Stream with Extract Agent"
  }
```

For viewing the newly created Agent Stream configuration, open the **Portal** and select the **Streams** menu.



Connector: AvayaConnector RTSocket Agent – Real Time

Output schema

Field Name	Type
Log ID	int
Skill	int
Workmode	int
Direction	int
Duration	int
Worksplit	int
ACD Calls	int
ACD Time	int
Hold Time	int
Available Time	int
AUX Time	int
Staff Time	int
Agent Time	int
Start Time	int
AUX Reason	string
AUX In Calls	int
AUX In Time	int
AUX Out Calls	int
AUX Out Time	int

8. Verification Steps

This section provides the tests that can be performed to verify proper configuration of Communication Manager, Avaya Call Management System, and Data Collaborator.

8.1. Verify Avaya Aura® Communication Manager

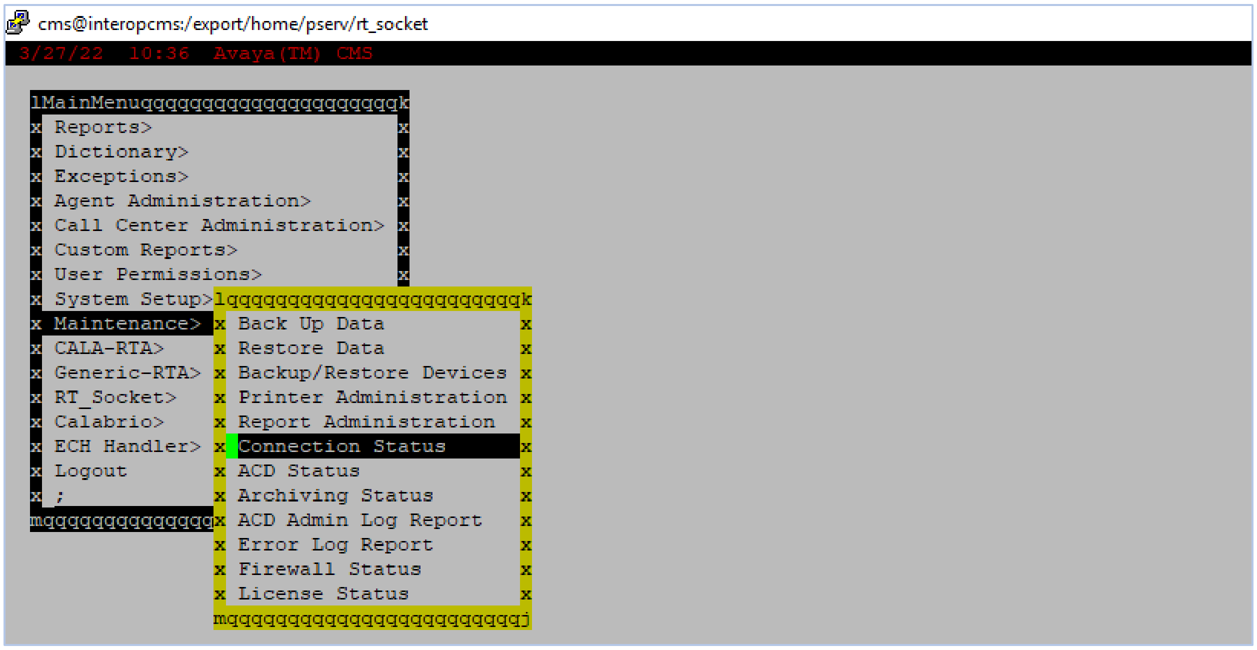
Verify the status of the processor interface channel by using the "status processor-channels n" command, where "n" is the processor channel number from **Section 5.4.** Verify that the **Session Layer Status** is "In Service", and that the **Socket Status** is "TCP connected", as shown below.

```
status processor-channels 1
                        PROCESSOR-CHANNEL STATUS

          Channel Number: 1
    Session Layer Status: In Service
           Socket Status: TCP connected
             Link Number: pv4
               Link Type: processor ethernet
   Message Buffer Number: 0

            Last Failure: Far end sent disconnect
                      At: 10/07/21 12:00
```

8.2. Verify Avaya Call Management System

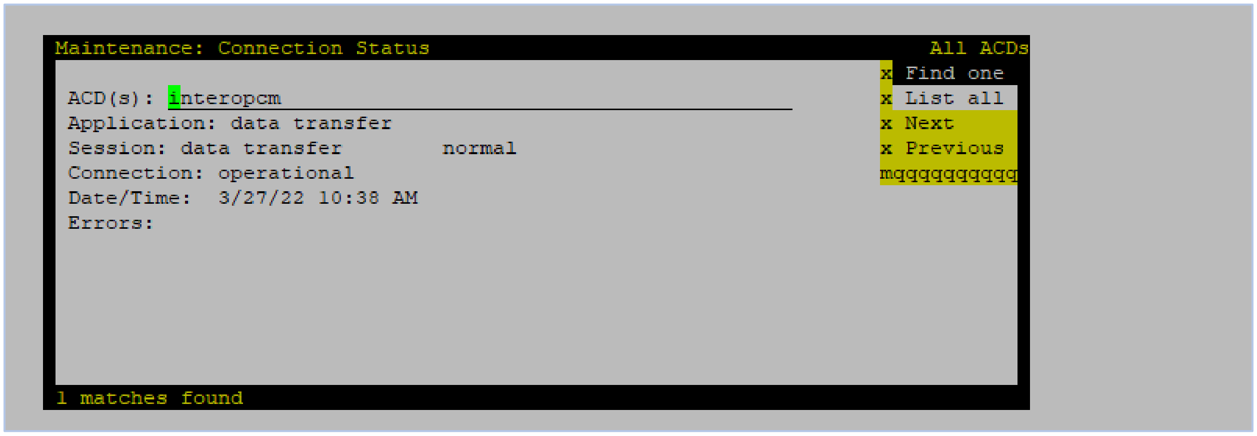
8.2.1. Connection Status

From the **MainMenu**, verify the status of the connection to Communication Manager by selecting **Maintenance → Connection Status**, as shown below.



Enter the corresponding **ACD(s)** number, which is provided by Avaya Professional Services. For the compliance testing, the corresponding switch connection is ACD system "1". Tab over to **Find one** and press **Enter**.

The switch connection status is displayed. Check the status in the **Session** and **Connection** fields, 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:  3/27/22 10:38 AM
 Errors:

1 matches found
```

8.2.2. RT_Socket

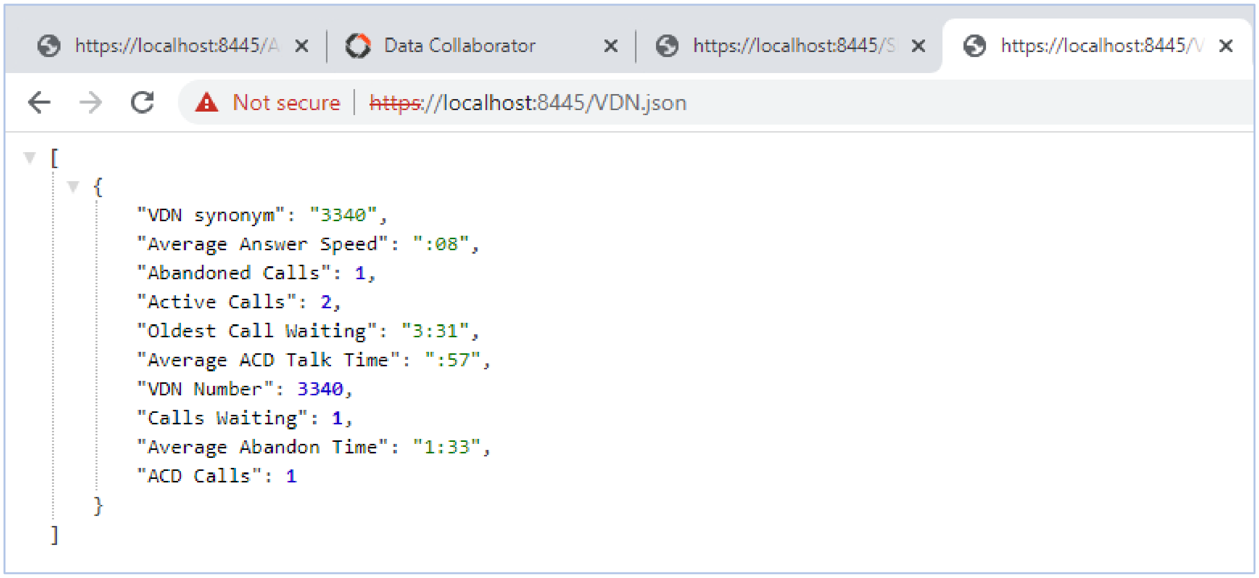
From the **MainMenu**, verify the configuration and status of the connection between CMS and Data Collaborator by selecting **RT_Socket** and entering "3" from the RT_Socket Menu**.** For compliance testing sessions 1-3 were used for Data Collaborator. Verify the sessions are **running** and **connected.**

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

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

Current Status of Configured Sessions:
--------------------------------------
RT_Socket session 1 is running, not encrypted, and connected.
RT_Socket session 2 is running, not encrypted, and connected.
RT_Socket session 3 is running, not encrypted, and connected.

Press Enter to return to menu:
```

8.3. Verify Geomant Data Collaborator

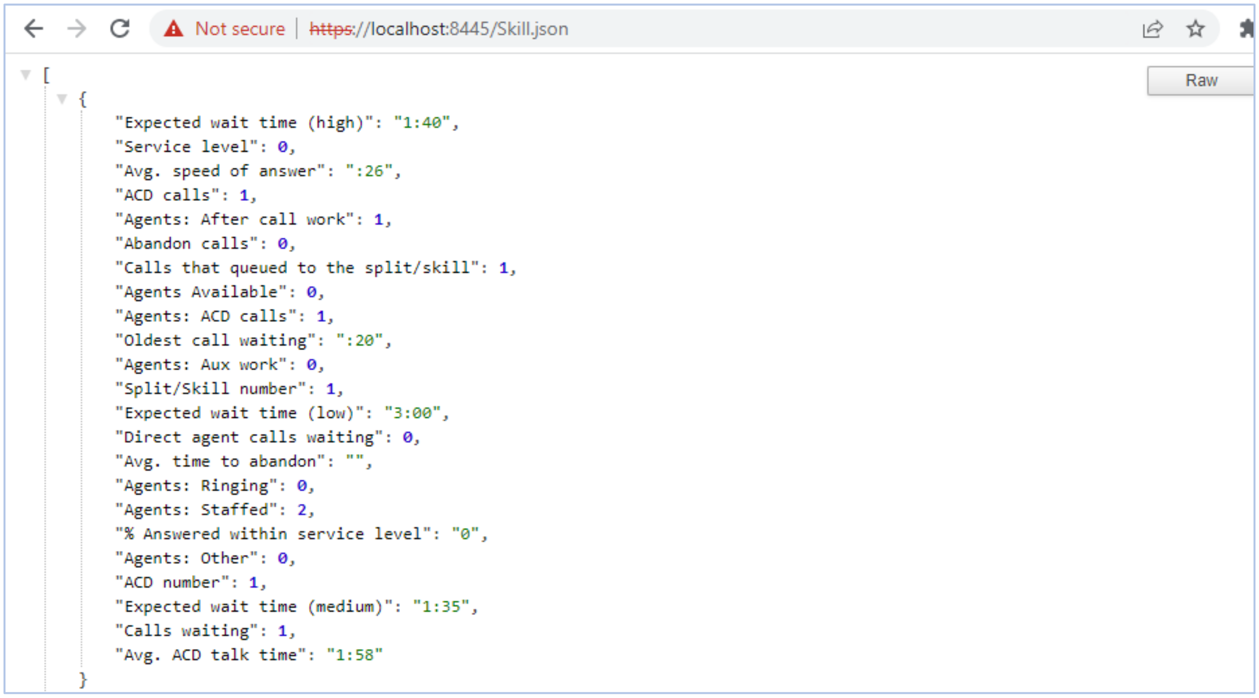
To verify the Data Collaborator is receiving real-time call data from CMS, from the Data Collaborator server, open internet browser and enter URL links to verify call data for VDN, Skill and Agent.

The screen below displays the real-time call data for VDN.



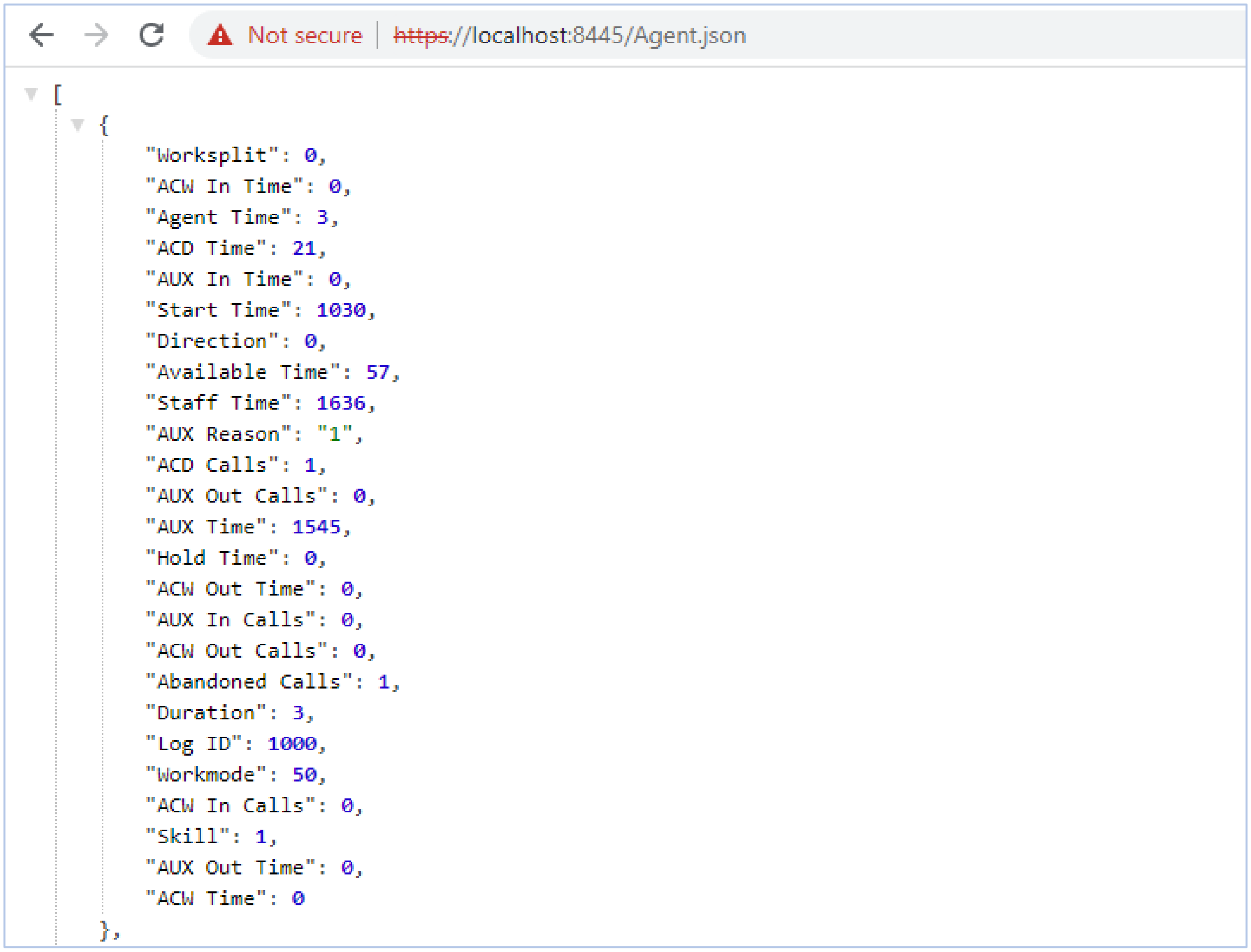
```
[
  {
    "VDN synonym": "3340",
    "Average Answer Speed": ":08",
    "Abandoned Calls": 1,
    "Active Calls": 2,
    "Oldest Call Waiting": "3:31",
    "Average ACD Talk Time": ":57",
    "VDN Number": 3340,
    "Calls Waiting": 1,
    "Average Abandon Time": "1:33",
    "ACD Calls": 1
  }
]
```

The screen below displays the real-time call data for skill.



```
[
  {
    "Expected wait time (high)": "1:40",
    "Service level": 0,
    "Avg. speed of answer": ":26",
    "ACD calls": 1,
    "Agents: After call work": 1,
    "Abandon calls": 0,
    "Calls that queued to the split/skill": 1,
    "Agents Available": 0,
    "Agents: ACD calls": 1,
    "Oldest call waiting": ":20",
    "Agents: Aux work": 0,
    "Split/Skill number": 1,
    "Expected wait time (low)": "3:00",
    "Direct agent calls waiting": 0,
    "Avg. time to abandon": "",
    "Agents: Ringing": 0,
    "Agents: Staffed": 2,
    "% Answered within service level": "0",
    "Agents: Other": 0,
    "ACD number": 1,
    "Expected wait time (medium)": "1:35",
    "Calls waiting": 1,
    "Avg. ACD talk time": "1:58"
  }
```

The screen below displays the real-time call data for agent.



Not secure | ~~https~~://localhost:8445/Agent.json

```
[
  {
    "Worksplit": 0,
    "ACW In Time": 0,
    "Agent Time": 3,
    "ACD Time": 21,
    "AUX In Time": 0,
    "Start Time": 1030,
    "Direction": 0,
    "Available Time": 57,
    "Staff Time": 1636,
    "AUX Reason": "1",
    "ACD Calls": 1,
    "AUX Out Calls": 0,
    "AUX Time": 1545,
    "Hold Time": 0,
    "ACW Out Time": 0,
    "AUX In Calls": 0,
    "ACW Out Calls": 0,
    "Abandoned Calls": 1,
    "Duration": 3,
    "Log ID": 1000,
    "Workmode": 50,
    "ACW In Calls": 0,
    "Skill": 1,
    "AUX Out Time": 0,
    "ACW Time": 0
  },
```

9. Conclusion

These Application Notes describe the configuration steps required for Geomant Data Collaborator to successfully interoperate with Avaya Aura® Communication Manager and Avaya Call Management System using the Real-Time Socket interface. All feature and serviceability test cases were completed successfully.

10. References

Product documentation for Avaya products may be found at 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.x, Issue 11, March 2021.

Product documentation related to Geomant Data Collaborator can be obtained directly from Geomant.

[4] Geomant Data Collaborator Install Guide.
[5] Geomant Data Collaborator User Guide v10.

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