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Avaya Solution & Interoperability Test Lab

Application Notes for Configuring Avaya Aura® Communication Manager R6.3 with NovaLink NovaTax on NovaBox – Issue 1.0

Abstract

These Application Notes describe the compliance testing of the NovaLink NovaTax on NovaBox call accounting system with Avaya Aura® Communication Manager. These Application Notes contain a description of the configurations for both NovaLink NovaTax on NovaBox and Avaya Aura® Communication Manager.

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

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1. Introduction

The purpose of these Application Notes is to describe the compliance testing performed between NovaLink NovaTax on NovaBox and Avaya Aura® Communication Manager, including a description of the configuration of each, a description of the tests that were performed, and a summary of the results of those tests.

The NovaLink NovaTax on NovaBox call accounting server processes Call Detail Records (CDR) and generates statistics and invoices to be used for customer billing. NovaLink NovaTax on NovaBox calculates the cost of a call based on the duration, origin, and destination of the call.

2. General Test Approach and Test Results

The interoperability compliance testing evaluated the ability of NovaTax on NovaBox to carry out CDR collection and reporting under a variety of call handling scenarios. Execution of call scenarios and verification of correct call data was performed manually and the results compared against reports generated via the NovaTax on NovaBox web interface.

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.

2.1. Interoperability Compliance Testing

The interoperability compliance testing focused on verifying the accurate reporting of calls in the following scenarios:
- Inter/Intra PBX calls
- Incoming/outgoing PSTN calls
- Call forwarding internal/external
- Call transfer internal/external supervised/blind
- Trunk to trunk transfer
- Call conferencing
- Account codes
- Authorization codes
- Bridged appearances
- Hold/retrieve
- Calls to hunt groups

Serviceability tests tested the ability of Communication Manager and NovaTax on NovaBox to recover from power or network interruption.

2.2. Test Results

All test cases were executed successfully.

2.3. Support

Technical support from NovaLink can be obtained through the following:

NovaLink GmbH
Businesstower
Zuercherstrasse 310
8500 Frauenfeld
Switzerland
helpdesk@novalink.ch
Phone: +41 52 762 66 77
Fax: +41 52 762 66 99

3. Reference Configuration

Figure 1 below shows the compliance tested configuration comprising of Communication Manager connected to NovaTax on NovaBox over a Reliable Protocol CDR link and an assortment H.323 IP endpoints with a simulated PSTN connection and an H.323 trunk to another PBX.
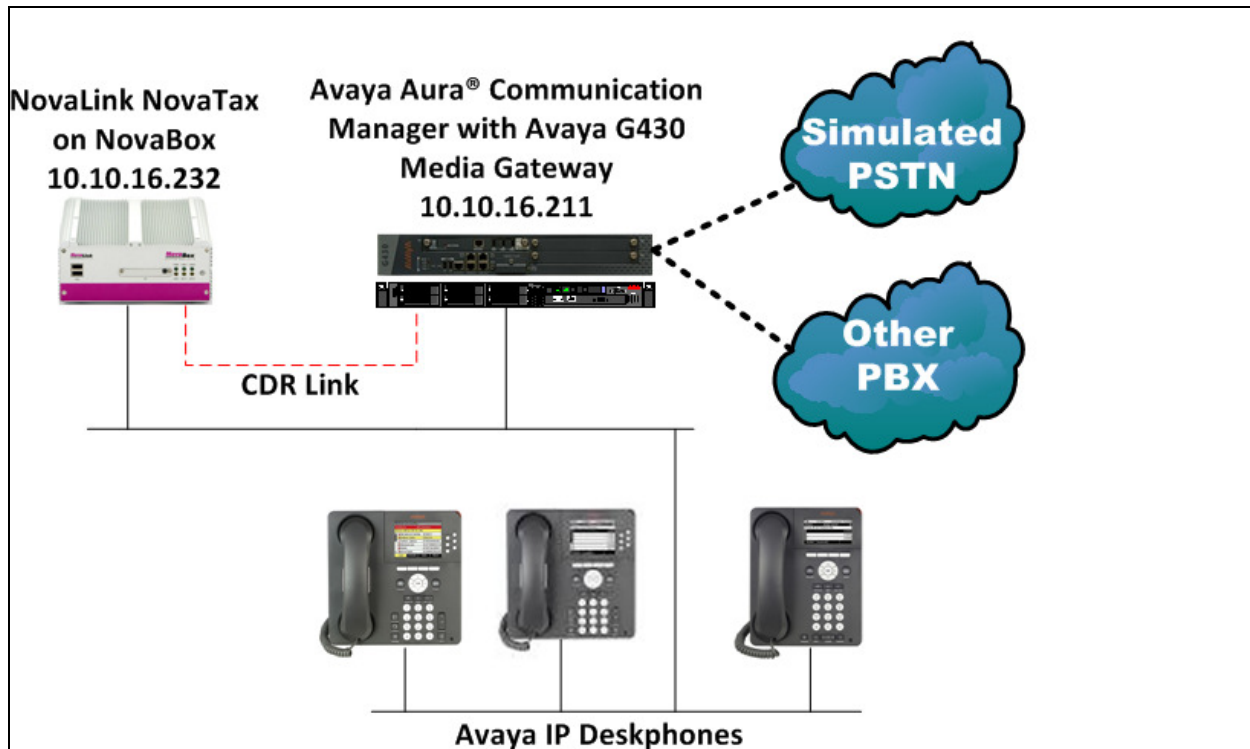

Figure 1: Avaya Aura® Communication Manager with NovaLink NovaTax on NovaBox Solution

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 vAppliance	R6.3 SP0.1
Avaya G430 Media Gateway	33.13.0
Avaya 9600 IP Deskphones	H.323 3.2
NovaTax on NovaBox	9.8

5. Configure Avaya Aura® Communication Manager

The configuration of Communication Manager is from the System Access Terminal (SAT) and can be summarized as follows:

- Configure Node Names
- Configure IP-Services
- Configure CDR Format
- Configure Intra Switch CDR

It is assumed that stations, hunt groups, account codes, authorization codes, routes, COR and trunks have been pre-configured as required, for more information see **Section 9**.

5.1. Configure Node Names

Node names must be configured with the IP address of NovaTax on NovaBox in order to configure IP-Services in **Section 5.2**. Enter the command **change node-names ip** enter an appropriate node name for NovaTax on NovaBox in the **Name** column and its corresponding **IP Address**. Note the **proc** IP address used during verification.

```
change node-names ip                                          Page   1 of   2
                                 IP NODE NAMES
    Name              IP Address
AES63RP               10.10.16.210
CM62                  10.10.16.142
IPO                   10.10.16.105
NovaBox               10.10.16.232
SM63RPSIG             10.10.16.214
default               0.0.0.0
procr                 10.10.16.211
procr6                ::
```

5.2. Configure IP-Services

IP-Services must be configured with the target and port details for the CDR output. Enter the command **change ip-services** and configure as follows:

Service Type – if this is the first CDR connection enter **CDR1**
Local Node – enter **procr** to define that the CDR data will be sent from the processor interface
Remote Node – enter the node name configured for NovaTax on NovaBox configured in **Section 5.1**
Remote Port – enter the port on which NovaTax on NovaBox will be configured to listen for CDR data, in this case **9000**

```
change ip-services                                            Page   1 of   4

                              IP SERVICES
 Service      Enabled     Local        Local        Remote       Remote
  Type                    Node         Port         Node         Port
CDR1                      procr        0            NovaBox      9000
```

On **Page 3** set **Reliable Protocol** to **y**.

```
change ip-services                                           Page   3 of   4

                            SESSION LAYER TIMERS
   Service      Reliable  Packet Resp   Session Connect  SPDU  Connectivity
    Type        Protocol    Timer       Message Cntr     Cntr     Timer

   CDR1            y         30               3           3        60
```

5.3. Configure CDR Format

The CDR output must be customized according to the format NovaTax on NovaBox requires.
Enter the command **change system-parameters cdr** and configure as follows:

- **CDR Date Format** – set to **day/month**
- **Primary Output Format** – set to **customized**
- **Primary Output Endpoint** – set to the Service Type configured in **Section 5.2** in this case **CDR1**
- **Use ISDN Layouts?** – set to **y**
- **Use Legacy CDR Formats?** - -set to **n**
- **Intra-switch CDR?** – set to **y**
- **Suppress CDR for Ineffective Call Attempts?** – set to **n**
- **CDR Account Code Length** - set to **4**

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

 Node Number (Local PBX ID):                      CDR Date Format: day/month
     Primary Output Format: customized    Primary Output Endpoint: CDR1
    Secondary Output Format:
           Use ISDN Layouts? y                 Enable CDR Storage on Disk? n
      Use Enhanced Formats? n     Condition Code 'T' For Redirected Calls? n
     Use Legacy CDR Formats? n                 Remove # From Called Number? y
Modified Circuit ID Display? n                          Intra-switch CDR? y
               Record Outgoing Calls Only? n      Outg Trk Call Splitting? y
  Suppress CDR for Ineffective Call Attempts? n      Outg Attd Call Record? y
     Disconnect Information in Place of FRL? n      Interworking Feat-flag? n
 Force Entry of Acct Code for Calls Marked on Toll Analysis Form? n
                                 Calls to Hunt Group - Record: member-ext
Record Called Vector Directory Number Instead of Group or Member? n
Record Agent ID on Incoming? n        Record Agent ID on Outgoing? y
     Inc Trk Call Splitting? n
 Record Non-Call-Assoc TSC? n              Call Record Handling Option: warning
     Record Call-Assoc TSC? n    Digits to Record for Outgoing Calls: dialed
  Privacy - Digits to Hide: 0            CDR Account Code Length: 4
Remove '+' from SIP Numbers? y
```

On **Page 2** configure exactly as shown below, defined by NovaLink.

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


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

                         Record length = 114
```

5.4. Configure Intra Switch CDR

Intra switch CDR must be configured so that calls between internal calls create CDR data. Enter the command **change intra-switch-cdr** and configure the stations which should have their calls logged to the CDR.

```
change intra-switch-cdr                                   Page   1 of   3
                        INTRA-SWITCH CDR
                          Assigned Members:   4    of 5000   administered
   Extension           Extension           Extension           Extension
   1000
   1001
   1008
   1009
```

6. Configure NovaLink NovaTax on NovaBox

The configuration of NovaTax on NovaBox is performed using its web interface and can be summarized as follows:

- Configure Avaya Aura® Communication Manager CDR Collection Parameters

6.1. Configure Avaya Aura® Communication Manager CDR Collection Parameters

From the NovaTax on NovaBox web interface click **System → Setup/Maintenance → Edit Configuration**.
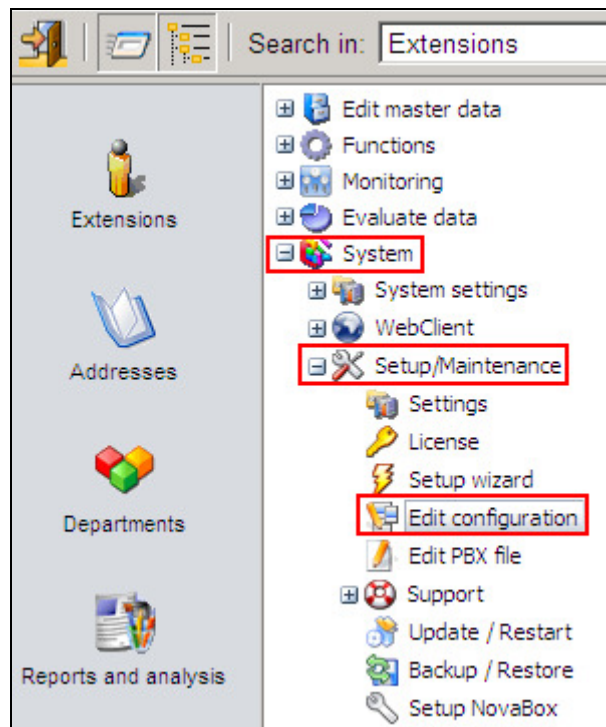
In the right hand pane scroll down to the **[General]** and **[IP]** sections and configure as shown below:

- **PABX File** – set to **Avaya ACM Ver 4x.pbx**
- **Data Source** – set to **11**
- **IP Port** – set to **9000** as configured in IP-Services in **Section 5.2**

7. Verification Steps

This section provides the tests that can be performed to verify the proper configuration of NovaTax on NovaBox with Communication Manager.

- Place a variety of calls including internal, external, inter PBX, transfer, conference and forwarding

7.1. Verify NovaLink NovaTax on NovaBox Successfully Receives Raw Data

From the NovaTax on NovaBox web interface click **Monitoring → Activities**.
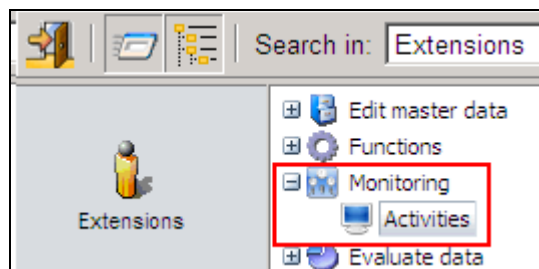
In the right hand pane by observing the **Loading configuration** message confirm that the configuration has been loaded using the correct **PBX file**, NovaTax on NovaBox is **Waiting for connection** and the message **Successfully started** is shown. Confirm the message **New State: Listening, New State Connect Pending!** and **New state: Connected!** appear and a CDR record containing call information is received.
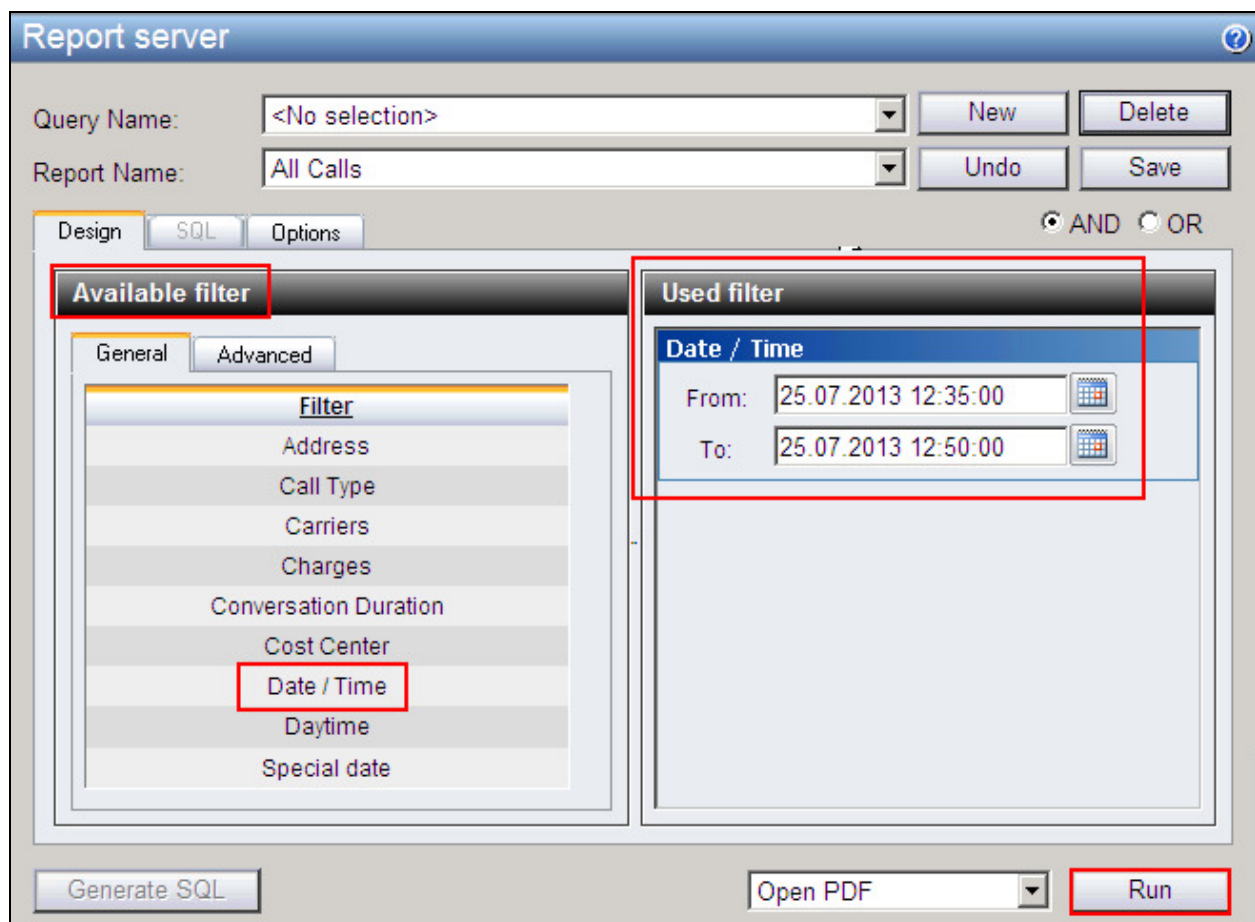
25.07.2013 12:45:39	Debug	Receiver	Loading configuration!
25.07.2013 12:45:39	Info	Receiver	Using PBX file: Avaya ACM Ver 4x.pbx
25.07.2013 12:45:39	Debug	Receiver	Nr 1: 50 Extension Licences found!
25.07.2013 12:45:39	Debug	Receiver	Nr 1: 1 File Site Licences found!
25.07.2013 12:45:39	Debug	Receiver	Nr 1: Waiting for connection... (0.0.0.0:9000)!
25.07.2013 12:45:40	Info	Receiver	Nr 1: Successfully started...
25.07.2013 12:45:40	Debug	Receiver	Nr 1: New state: Listening!
25.07.2013 12:45:58	Debug	Receiver	Nr 1: New state: Connect Pending!
25.07.2013 12:45:58	Debug	Receiver	Nr 1: New state: Connected!
25.07.2013 12:45:58	Info	Receiver	Nr 1: 250713123000011 1000 900447939991792 709004 97 0 M 0[CR/13][LF/10]

7.2. Verify NovaLink NovaTax on NovaBox Report

From the NovaTax on NovaBox web interface click **Evaluate data → Reports and analysis**.
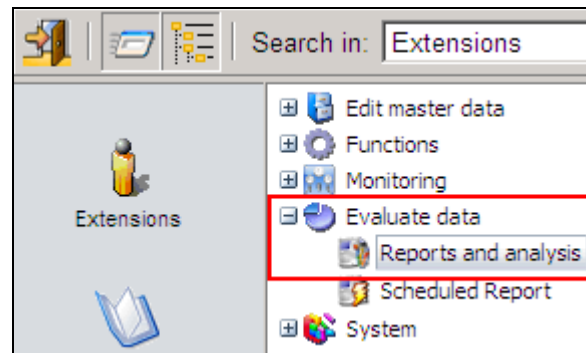
In the right hand pane drag **Data / Time** from the **Available filter** section to the **Used filter** section and enter the date and time range for which to report on and click **Run**.

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Verify that the displayed data correctly represents the actual call activity.

All Calls

Date / Time: {25.07.2013 12:35:00} - {25.07.2013 12:50:00}

Date	Time	Phone Number	Direction	Status	Duration	Charges	Service	Call Type
1000								**1000**
25.07.2013	12:36:00	900447939991792	Outgoing	Completed	00:00:04	0.00	Other	Personal
Totals for 1000 (1 Call)					00:00:04	0.00		
Total (1 Call)					00:00:04	0.00		

8. Conclusion

These Application Notes describe the configuration steps required for NovaLink NovaTax on NovaBox to successfully interoperate with Avaya Aura® Communication Manager. All test cases were completed successfully with any observations noted in **Section 2.2**.

9. Additional References

This section references the product documentation relevant to these Application Notes.

1. *Administering Avaya Aura® Communication Manager*, Release 6.3, 03-300509, Issue 8, May 2013
2. ftp://support.novalink.ch/Technikerhandbuch/English/Technikerhandbuch NovaLink GmbH EN.chm
   (please request Login and Password from NovaLink)