



## **Avaya Solution & Interoperability Test Lab**

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# **Application Notes for configuring novatax from novalink with Avaya Aura® Communication R7.0 to collect CDR – Issue 1.0**

### **Abstract**

These Application Notes describe the compliance testing of the novalink novatax call accounting system with Avaya Aura® Communication Manager. novatax integrates with Communication Manager using the TCP link to collect CDR data.

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

The purpose of these Application Notes is to describe the compliance testing performed between novalink novatax 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 novatax call accounting server processes Call Detail Records (CDR) and generates statistics and invoices to be used for customer billing. novatax 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 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 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:

- Internal PBX calls
- Incoming/outgoing PSTN calls
- Call forwarding internal/external
- Call transfer internal/external supervised/blind
- Trunk to trunk transfer
- Call conferencing
- Account codes
- Bridged appearances
- Hold/retrieve
- Calls to hunt groups

Serviceability tests tested the ability of Communication Manager and novatax to recover from network interruption.

## 2.2. Test Results

All test cases were executed successfully, the following observation was noted.

- Conference with the PSTN showing an “internal” call, Ext1 calls Ext2 and conferences in PSTN, Ext1 then hangs up leaving PSTN and Ext2 - Records on both Ext1 and Ext 2 with the PSTN show as “internal”, this should be shown as an “outbound” or external call.

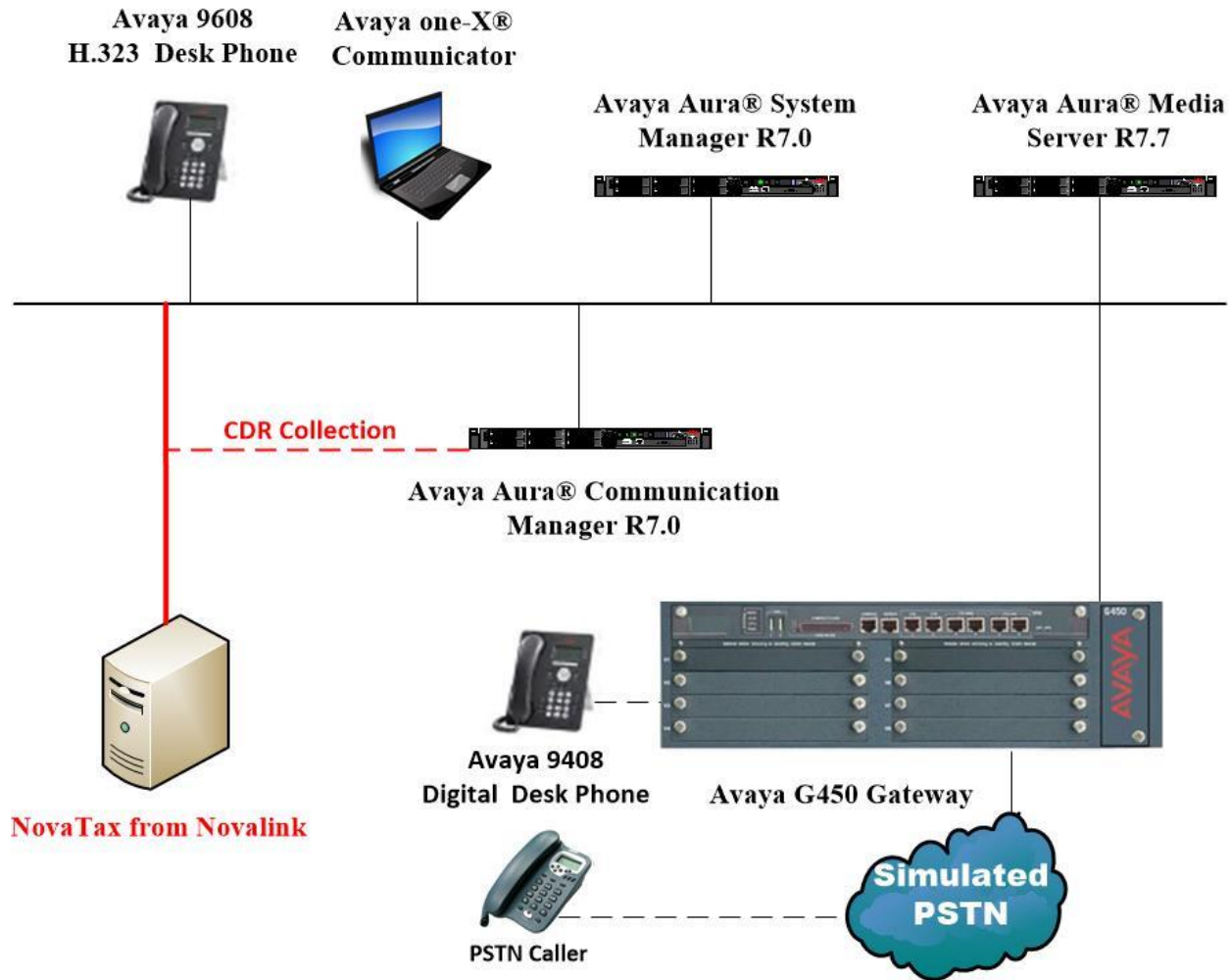
## 2.3. Support

Technical support can be obtained for novatax from the website <http://www.novalink.ch/en/> or from the following.

novalink GmbH  
Businessstower  
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 over a Reliable Protocol CDR link and an H.323 IP endpoint with a simulated PSTN connection and a simulated PSTN using a QSIG trunk to another PBX.



**Figure 1: Avaya Aura® Communication Manager R7.0 with novalink novatax**

## 4. Equipment and Software Validated

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

<b>Equipment/Software</b>	<b>Release/Version</b>
Avaya Aura® System Manager running on a virtual server	System Manager 7.0.1.1 Build No. - 7.0.0.0.16266 Software Update Revision No: 7.0.1.1.065378 Service Pack 1
Avaya Aura® Communication Manager running on a virtual server	R7.0 R017x.00.0.441.0 00.0.441.0-23169
Avaya Media Server running on a virtual server	Media Server SYSTEM R7.7.0.8 Media Server R7.7.0.200
Avaya G450 Gateway	37.19.0 /1
Avaya 96x1 H323 one-X® Deskphone	6.6.028
Avaya 9408 Digital Deskphone	V2.0
Avaya one-X® Communicator H323	6.2.6.03-FP6
novalink novatax running on a Windows 2012 virtual server	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 in order to configure IP-Services in **Section 5.2**. Enter the command **change node-names ip** enter an appropriate node name for novatax in the **Name** column and its corresponding **IP Address**. Note the **procr** IP address used during verification.

```
change node-names ip                                     Page 1 of 2
                                                    IP NODE NAMES
Name                IP Address
AES70vmpg           10.10.16.210
CM70                 10.10.16.142
IPO                 10.10.16.105
novatax            10.10.16.232
SM70vmpg           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 configured in **Section 5.1**

**Remote Port** – enter the port on which novatax will be configured to listen for CDR data, in this case **9000**

```
change ip-services                                     Page 1 of 4
                                                    IP SERVICES
Service Type      Enabled   Local Node   Local Port   Remote Node   Remote Port
CDR1            procr    0           novatax    9000
```

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

change ip-services						Page 3 of 4
Service Type	Reliable Protocol	SESSION LAYER TIMERS				
		Packet Resp Timer	Session Connect Message Cntr	SPDU Cntr	Connectivity Timer	
CDR1	<b>y</b>	30	3	3	60	

### 5.3. Configure CDR Format

The CDR output must be customized according to the format novatax 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):	<b>CDR Date Format: day/month</b>	
<b>Primary Output Format: customized</b>	<b>Primary Output Endpoint: CDR1</b>	
Secondary Output Format:		
<b>Use ISDN Layouts? y</b>	Enable CDR Storage on Disk? n	
Use Enhanced Formats? n	Condition Code 'T' For Redirected Calls? n	
<b>Use Legacy CDR Formats? n</b>	Remove # From Called Number? y	
Modified Circuit ID Display? n	<b>Intra-switch CDR? y</b>	
Record Outgoing Calls Only? n	Outg Trk Call Splitting? y	
<b>Suppress CDR for Ineffective Call Attempts? n</b>	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	<b>CDR Account Code Length: 4</b>	
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	Extension	Extension
1000					
1001					
1008					
1009					



## 6. Configure novatax

The following sections describe the steps required to configure novatax in order to successfully connect to Communication Manager using the TCP port. All configuration changes are made to novatax using a web browser session to the novatax server. Open a web browser session to the IP Address of the novatax server followed by /novatax. For example what was used for compliance testing was **http://10.10.40.44/novatax**. The following screen is shown asking for the **User Name** and **Password**. Enter these and click on the **Login** button.

NovaTax WebClient (NovaLink, Switzerland) - Internet Explorer

23/02/2015 11:53:22

**NovaTax**  
Call Detail Recording

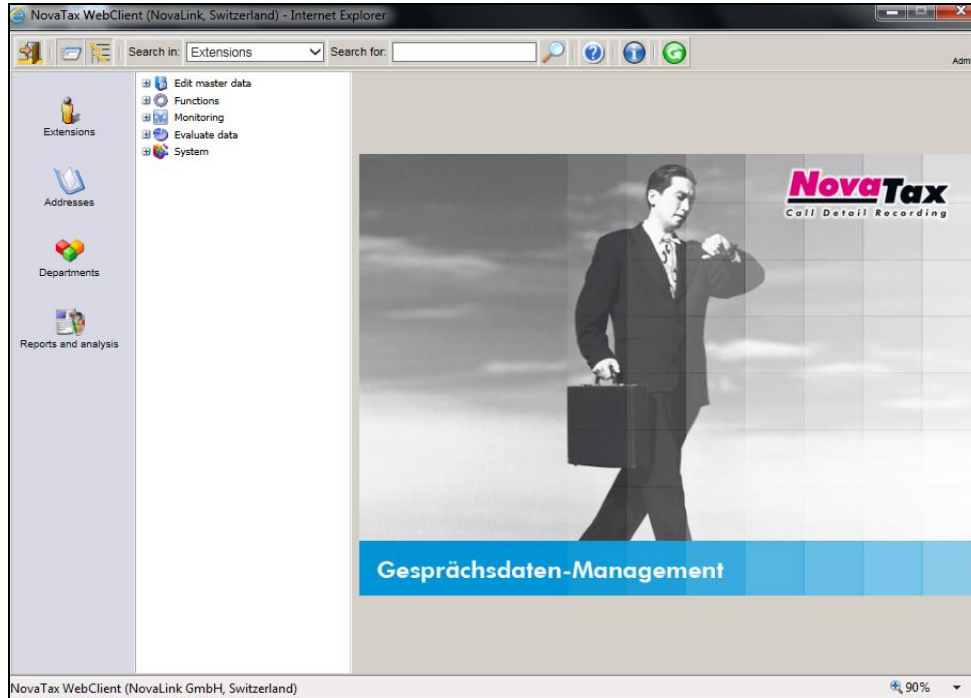
User Name:

Password:  [Change password](#)

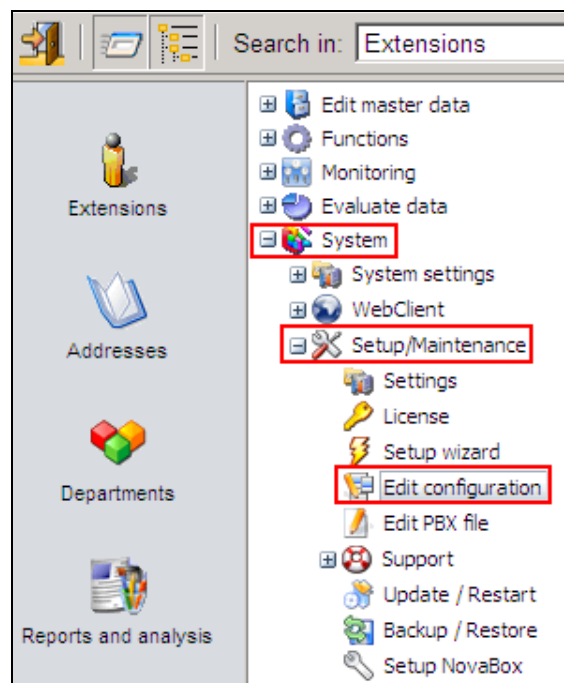
NovaTax WebClient (NovaLink GmbH, Switzerland) 90%

## 6.1. Configure Avaya Aura® Communication Manager CDR Collection Parameters

Once logged in the following screen is presented to the user.





From the novatax 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**

Overview:

<b>[General]</b>		General
PABX File (PABXFile)	Avaya ACM Ver 4x.pbx	
Data Source (DataSource)	11	

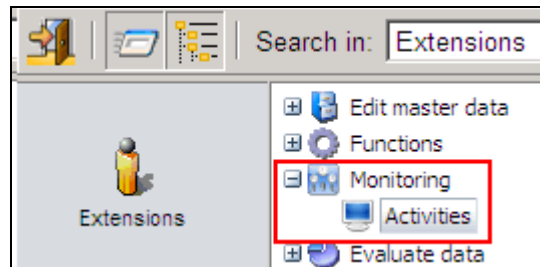
<b>[IP]</b>		Data connection
IP Adress (IPAdress)		
IP Port (IPPort)	9000	

## 7. Verification Steps

This section provides the tests that can be performed to verify the proper configuration of novatax with Communication Manager. Place a variety of calls including internal, external, inter PBX, transfer, conference and forwarding

### 7.1. Verify novatax successfully receives Raw Data

Open a web browser session to the IP Address of the novatax server followed by /novatax (as per **Section 6**). From the novatax web interface click **Monitoring** → **Activities**.

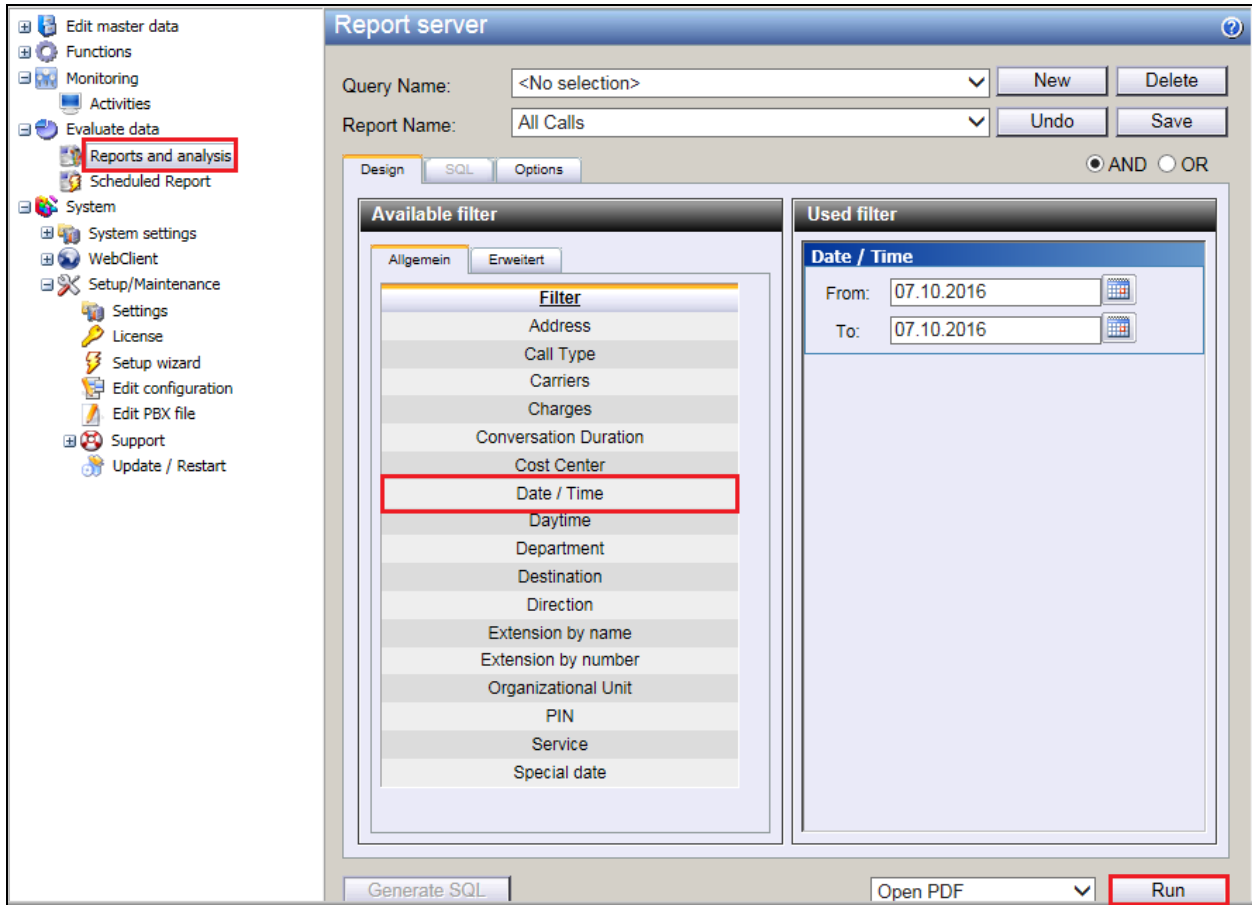


In the right hand pane by observing the **Loading configuration** message confirm that the configuration has been loaded using the correct **PBX file**, novatax is **Waiting for connection** and the message **Successfully started** is shown. Confirm the message **New State: Listening**, **New State Connect 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 novatax Report

Navigate to **Evaluate Data** → **Reports and analysis**. In the main window there is a list of Filters that can be chosen, for example **Date / Time** as is highlighted below. Drag the required filter into the **Used filter** area. Select the necessary date to run the report and click on **Run** at the bottom right of the screen



A new window should open showing the calls that were made for that day. An example of this is shown below showing calls from **7000** and **7001**.

NovaTax WebClient (NovaLink, Switzerland) - Internet Explorer  
 http://10.10.40.44/novatax/(S(hkvvco45s4ejnpba233gnn55))/Wait.aspx - Internet Explorer

## All Calls

created by **NovaTax**  
Call Detail Recording

Date / Time: (07.10.2016) - (07.10.2016)

Date	Time	Phone Number	Direction	Status	Duration	Charges	Service	Call Type
<b>4999</b>								
07/10/2016	14:10:00	5250#	Internal	Completed	00:00:26	0.00	Telephony	Business
07/10/2016	14:14:00	5250#	Internal	Completed	00:00:04	0.00	Telephony	Business
Totals for 4999 (2 Calls)					00:00:29	0.00		
<b>7000</b>								
07/10/2016	14:02:00	4990	Outgoing	Completed	00:00:24	0.00	Telephony	Other
07/10/2016	14:05:00	4990	Outgoing	Completed	00:00:08	0.00	Telephony	Other
07/10/2016	14:07:00	4999	Outgoing	Completed	00:00:05	0.00	Telephony	Other
07/10/2016	14:18:00	5250#	Internal	Completed	00:00:31	0.00	Telephony	Business
07/10/2016	14:20:00	7050	Internal	Completed	00:00:34	0.00	Telephony	Business
07/10/2016	14:20:00	5250#	Internal	Completed	00:00:11	0.00	Telephony	Business
07/10/2016	14:20:00	7050	Internal	Completed	00:00:34	0.00	Telephony	Business
07/10/2016	14:20:00	5250#	Internal	Completed	00:00:11	0.00	Telephony	Business
Totals for 7000 (8 Calls)					00:02:36	0.00		
<b>7001</b>								
07/10/2016	14:02:00		Incoming	Completed	00:00:20	0.00	Telephony	Business
07/10/2016	14:03:00	7050	Internal	Completed	00:00:00	0.00	Telephony	Business
07/10/2016	14:03:00	7050	Internal	Completed	00:00:00	0.00	Telephony	Business
07/10/2016	14:03:00		Incoming	Completed	00:00:20	0.00	Telephony	Business
07/10/2016	14:05:00	4999	Incoming	Completed	00:00:20	0.00	Telephony	Business
07/10/2016	14:05:00	4999	Outgoing	Completed	00:00:01	0.00	Telephony	Other
07/10/2016	14:05:00	4999	Outgoing	Completed	00:00:00	0.00	Telephony	Other
07/10/2016	14:06:00	4999	Incoming	Completed	00:00:20	0.00	Telephony	Business
07/10/2016	14:06:00	4999	Outgoing	Completed	00:00:01	0.00	Telephony	Other
07/10/2016	14:06:00	4999	Outgoing	Completed	00:00:01	0.00	Telephony	Other
07/10/2016	14:07:00	4999	Incoming	Completed	00:00:08	0.00	Telephony	Business
07/10/2016	14:07:00	4999	Incoming	Completed	00:00:01	0.00	Telephony	Business
07/10/2016	14:07:00	4999	Outgoing	Completed	00:00:01	0.00	Telephony	Other
07/10/2016	14:08:00	4999	Incoming	Completed	00:00:20	0.00	Telephony	Business
07/10/2016	14:18:00	7000	Internal	Completed	00:00:47	0.00	Telephony	Business

10/10/2016 10:26:14 Avaya Dev Connect, 8500 Frauenfeld Page 1 of 2

## 8. Conclusion

These Application Notes describe the configuration steps required for novatax from novalink 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*, Document ID 03-300509
- [2] *Avaya Aura® Communication Manager Feature Description and Implementation*, Document ID 555-245-205

Technical support can be obtained for novatax from the website <http://www.novalink.ch/en/> or from [ftp://support.novalink.ch/Technikerhandbuch/English/Technikerhandbuch\\_novalink GmbH EN.chm](ftp://support.novalink.ch/Technikerhandbuch/English/Technikerhandbuch_novalink_GmbH_EN.chm) (please request Login and Password from novalink)

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