



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

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# **Application Notes for Noble Systems Contact Center Solution with Avaya Aura® Communication Manager Using Avaya Aura® Application Enablement Services – Issue 1.0**

### **Abstract**

These Application Notes describe the configuration steps required for Noble Systems Contact Center Solution to interoperate with Avaya Aura® Communication Manager using Avaya Aura® Application Enablement Services.

Noble Systems Contact Center Solution is a unified customer interaction management solution for multimedia environments that combines outbound predictive dialing and inbound with blended call management. The compliance testing focused on the voice integration with Avaya Aura® Communication Manager via the Avaya Aura® Application Enablement Services Telephony Services Application Programming Interface for inbound call management.

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 for Noble Systems Contact Center Solution to interoperate with Avaya Aura® Communication Manager using Avaya Aura® Application Enablement Services.

Noble Systems Contact Center Solution is a unified customer interaction management solution for multimedia environments that combines outbound predictive dialing and inbound with blended call management. The compliance testing focused on the voice integration with Avaya Aura® Communication Manager via the Avaya Aura® Application Enablement Services Telephony Services Application Programming Interface (TSAPI) for inbound call management.

The TSAPI interface is used by Noble Systems Contact Center Solution to query and monitor devices such as agent stations on Avaya Aura® Communication Manager, and to support call control activities from the agent desktops. Agents have desktop computers running the web-based or client version of Noble Systems Composer to perform ACD related activities such as login/logout, and control of calls such as transfer/conference.

# 2. General Test Approach and Test Results

The feature test cases were performed both automatically and manually. Upon start of Contact Center Solution, the application automatically uses TSAPI to query skill groups and agent states, and requests monitoring of VDNs and agent station extensions.

For the manual part of the testing, agents were logged in/out using the web-based Composer application. Incoming calls were made to the VDNs and delivered by Communication Manager to available agents. Contact Center Solution automatically answered the delivered calls on behalf of the agents. Manual call controls from the agent desktop computers were exercised to verify remaining features such as transfer/conference.

The serviceability test cases were performed manually by disconnecting and reconnecting the Ethernet cable to Contact Center Solution.

## 2.1. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing.

The feature testing focused on verifying the following on Contact Center Solution:

- Use of TSAPI query service to query ACD split, device information, and agent states.
- Use of TSAPI event report service to monitor VDNs and agent station extensions.
- Use of TSAPI set value service to set agent states.
- Use of TSAPI call control service to support call control actions such as automatic answer by the application, and manual transfer from the agent desktops.
- Proper handling of call scenarios involving inbound, outbound, ACD, non-ACD, drop, transfer, conference, and multiple agents.

The serviceability testing focused on verifying the ability of Contact Center Solution to recover from adverse conditions, such as disconnecting/reconnecting the Ethernet connection to Contact Center Solution.

## 2.2. Test Results

All test cases were executed and verified. The observations on Contact Center Solution from the compliance testing is that this version of Composer does not support hold/reconnect, screen updates on the transferred-to and conference-to agents, nor propagation of actual DNIS associated with the ACD calls.

## 2.3. Support

Technical support on Contact Center Solution can be obtained through the following:

- **Phone:** (888) 966-2539
- **Web:** <http://www.noblesys.com/contact.aspx>
- **Email:** [info@noblesys.com](mailto:info@noblesys.com)

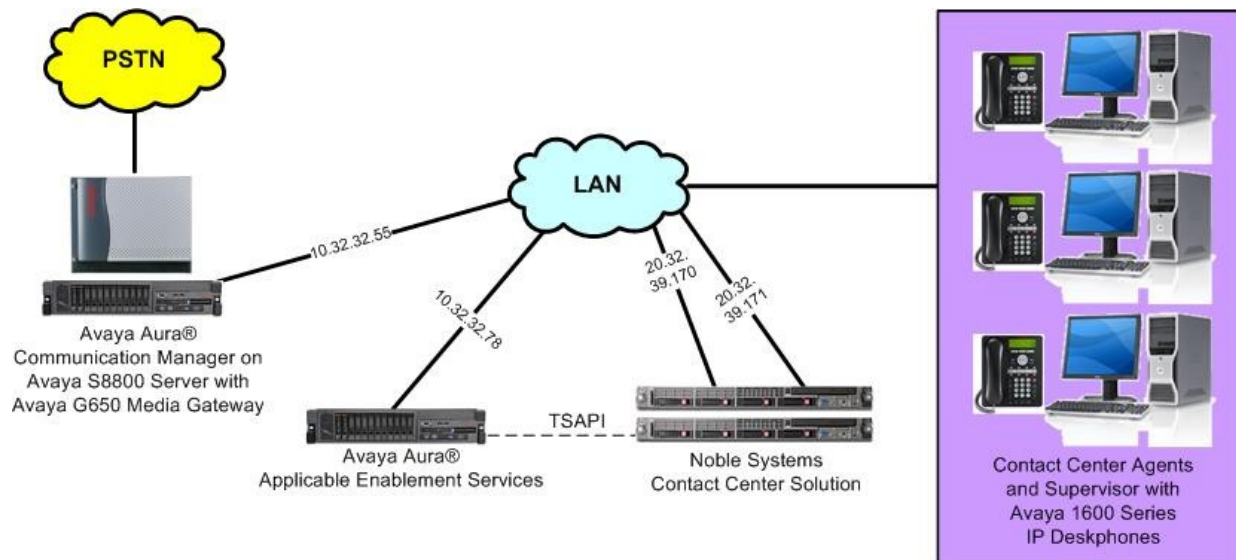
### 3. Reference Configuration

The Contact Center Solutions consists of multiple servers, and the compliance testing used a two-server configuration with the Composer Web Server component running on a separate server.

The detailed administration of basic connectivity between Communication Manager and Application Enablement Services, and of contact center devices are not the focus of these Application Notes and will not be described.

The contact center devices used in the compliance testing are shown in the table below.

Device Type	Device Number/Extension
VDNs	65500-1 with DNIS 6137717521-2
Skill groups	65555-6
Supervisor station extension	65000
Agent station extensions	65001-2
Agent IDs	65881-2 with same password



## 4. Equipment and Software Validated

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

Equipment	Software
Avaya Aura® Communication Manager on Avaya S8800 Server	6.0.1 SP 5.01 (R016x.00.1.510.1-19303)
Avaya G650 Media Gateway <ul style="list-style-type: none"><li>• TN799DP C-LAN Circuit Pack</li><li>• TN2302AP IP Media Processor</li></ul>	HW01 FW040 HW20 FW122
Avaya Aura® Application Enablement Services	6.1.1
Avaya 1600 Series IP Telephone (H.323)	1.3
Noble Systems Contact Center Solution on Microsoft Windows Server 2008	V4000.20-032 R2 Enterprise SP 1
Noble Systems Composer Web Server	2011.1.1.48

## 5. Configure Avaya Aura® Communication Manager

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

- Verify License
- Administer CTI link

### 5.1. Verify License

Log in to 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 **Computer Telephony Adjunct Links** customer option is set to “y” on **Page 3**. If this option is not set to “y”, then contact the Avaya sales team or business partner for a proper license file.

display system-parameters customer-options		Page	3 of	11
OPTIONAL FEATURES				
Abbreviated Dialing Enhanced List?	y	Audible Message Waiting?	y	
Access Security Gateway (ASG)?	y	Authorization Codes?	y	
Analog Trunk Incoming Call ID?	y	CAS Branch?	n	
A/D Grp/Sys List Dialing Start at 01?	y	CAS Main?	n	
Answer Supervision by Call Classifier?	y	Change COR by FAC?	n	
ARS?	y	<b>Computer Telephony Adjunct Links?</b>	<b>y</b>	
ARS/AAR Partitioning?	y	Cvg Of Calls Redirected Off-net?	y	
ARS/AAR Dialing without FAC?	y	DCS (Basic)?	y	

### 5.2. Administer CTI Link

Add a CTI link using the “add cti-link n” command, where “n” is an available CTI link number. Enter an available extension number in the **Extension** field. Note that the CTI link number and extension number may vary. Enter “ADJ-IP” in the **Type** field, and a descriptive name in the **Name** field. Default values may be used in the remaining fields.

add cti-link 1		Page	1 of	3
CTI LINK				
CTI Link: 1				
<b>Extension:</b> 60100				
<b>Type:</b> ADJ-IP				
<b>Name:</b> TSAPI Link				
COR: 1				

## 6. Configure Avaya Aura® Application Enablement Services

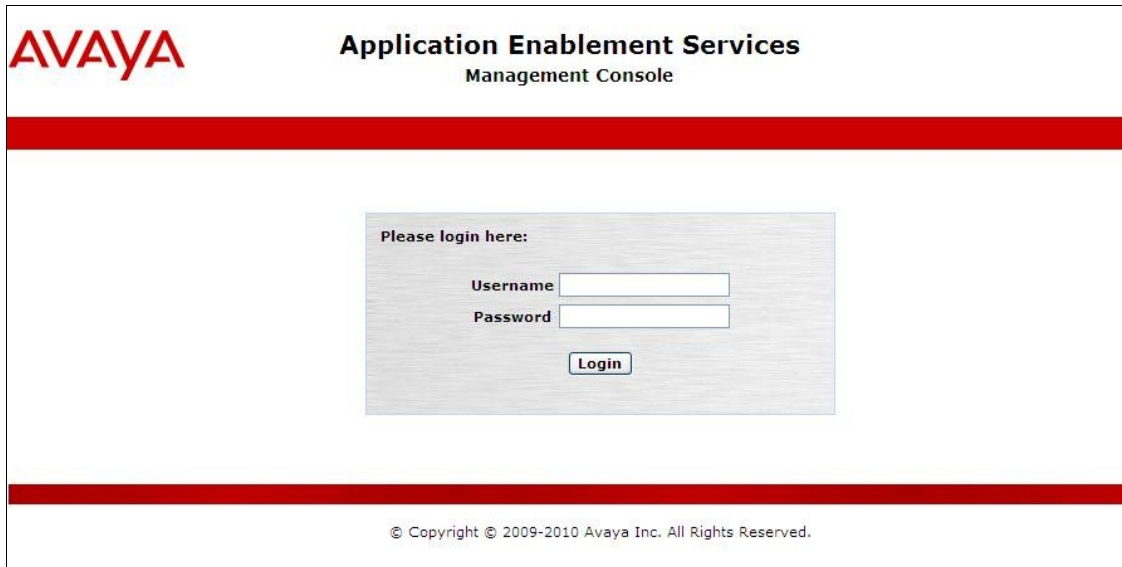
This section provides the procedures for configuring Application Enablement Services. The procedures include the following areas:

- Launch OAM interface
- Verify license
- Administer TSAPI link
- Disable security database
- Restart TSAPI service
- Obtain Tlink name
- Administer Noble Systems user

### 6.1. Launch OAM Interface

Access the OAM web-based interface by using the URL “https://ip-address” in an Internet browser window, where “ip-address” is the IP address of Application Enablement Services.

The **Please login here** screen is displayed. Log in using the appropriate credentials.



The screenshot shows the Avaya Application Enablement Services Management Console login interface. At the top left is the Avaya logo. To its right, the text "Application Enablement Services" is displayed in a large, bold font, with "Management Console" in a smaller font below it. A thick red horizontal bar separates the header from the main content area. In the center of the page is a light gray rectangular box containing the login form. The form has the text "Please login here:" at the top. Below this are two input fields: "Username" and "Password". A "Login" button is positioned below the password field. At the bottom of the page, another thick red horizontal bar is present, with the copyright notice "© Copyright © 2009-2010 Avaya Inc. All Rights Reserved." centered below it.

The **Welcome to OAM** screen is displayed next.

The screenshot shows the Avaya Application Enablement Services Management Console. The top header includes the Avaya logo, the title "Application Enablement Services Management Console", and a welcome message for user "craft" with login details. A red navigation bar contains "Home", "Help", and "Logout" links. On the left, a sidebar lists menu items: AE Services, Communication Manager Interface, Licensing, Maintenance, Networking, Security, Status, User Management, Utilities, and Help. The main content area is titled "Welcome to OAM" and explains the purpose of the OAM Web, listing administrative domains and their functions. It also notes that these domains can be managed by one or multiple administrators.

**AVAYA Application Enablement Services Management Console**

Welcome: User craft  
Last login: Thu Dec 8 10:38:57 2011 from 20.32.39.20  
HostName/IP: AES2-S8800/10.32.32.66  
Server Offer Type: VIRTUAL\_APPLIANCE  
SW Version: r6-1-1-30-0

Home | Help | Logout

- ▶ AE Services
- ▶ Communication Manager Interface
- ▶ Licensing
- ▶ Maintenance
- ▶ Networking
- ▶ Security
- ▶ Status
- ▶ User Management
- ▶ Utilities
- ▶ Help

### Welcome to OAM

The AE Services Operations, Administration, and Management (OAM) Web provides you with tools for managing the AE Server. OAM spans the following administrative domains:

- AE Services - Use AE Services to manage all AE Services that you are licensed to use on the AE Server.
- Communication Manager Interface - Use Communication Manager Interface to manage switch connection and dialplan.
- Licensing - Use Licensing to manage the license server.
- Maintenance - Use Maintenance to manage the routine maintenance tasks.
- Networking - Use Networking to manage the network interfaces and ports.
- Security - Use Security to manage Linux user accounts, certificate, host authentication and authorization, configure Linux-PAM (Pluggable Authentication Modules for Linux) and so on.
- Status - Use Status to obtain server status informations.
- User Management - Use User Management to manage AE Services users and AE Services user-related resources.
- Utilities - Use Utilities to carry out basic connectivity tests.
- Help - Use Help to obtain a few tips for using the OAM Help system

Depending on your business requirements, these administrative domains can be served by one administrator for both domains, or a separate administrator for each domain.

## 6.2. Verify License

Select **Licensing > WebLM Server Access** in the left pane, to display the **Web License Manager** pop-up screen (not shown), and log in using the appropriate credentials.

The screenshot shows the Avaya Application Enablement Services Management Console with the "Licensing" menu item selected in the sidebar. The main content area is titled "Licensing" and provides instructions for setting up and maintaining the WebLM, including the required server address and access details. It also mentions reserved licenses for TSAPI and DMCC.

**AVAYA Application Enablement Services Management Console**

Welcome: User craft  
Last login: Thu Dec 8 10:38:57 2011 from 20.32.39.20  
HostName/IP: AES2-S8800/10.32.32.66  
Server Offer Type: VIRTUAL\_APPLIANCE  
SW Version: r6-1-1-30-0

Licensing | Home | Help | Logout

- ▶ AE Services
- ▶ Communication Manager Interface
- ▼ **Licensing**
  - WebLM Server Address
  - WebLM Server Access**
  - Reserved Licenses
- ▶ Maintenance
- ▶ Networking
- ▶ Security

### Licensing

If you are setting up and maintaining the WebLM, you need to use the following:

- WebLM Server Address

If you are importing, setting up and maintaining the license, you need to use the following:

- WebLM Server Access


If you want to administer TSAPI Reserved Licenses or DMCC Reserved Licenses, you need to use the following:

- Reserved Licenses



The **Web License Manager** screen below is displayed. Select **Licensed Products > APPL\_ENAB > Application\_Enablement** in the left pane, to display the **Licensed Features** screen in the right pane.

Verify that there are sufficient licenses for **TSAPI Simultaneous Users**, as shown below.


Web License Manager (WebLM v4.6)
Logoff

Install License

**Licensed Products**

APPL\_ENAB

**Application\_Enablement**

Uninstall License

Change Password

Server Properties

Manage Users

Logout

**Application Enablement (CTI) - Release: 6 - SID: 10503000 (Standard License File)**

You are here: Licensed products > Application Enablement (CTI)

License installed on: Dec 6, 2011 5:02:20 PM EST

[View Peak Usage](#)

**Licensed Features**

Feature (Keyword)	Expiration Date	Licensed	Acquired
CVLAN ASA1 (VALUE_AES_CVLAN_ASA1)	2012/12/06	16	0
Unified CC API Desktop Edition (VALUE_AES_AEC_UNIFIED_CC_DESKTOP)	2012/12/06	1000	0
AES ADVANCED SMALL SWITCH (VALUE_AES_AEC_SMALL_ADVANCED)	2012/12/06	3	0
CVLAN Proprietary Links (VALUE_AES_PROPRIETARY_LINKS)	2012/12/06	16	0
Product Notes (VALUE_NOTES)	2012/12/06	SmallServerTypes: s8300c;s8300d;icc;premio;tn8400;laptop;CtiSmallServer MediumServerTypes: ibmx306;ibmx306m;dell1950;xen;hs20;hs20_8832_vm;CtiMediumServer LargeServerTypes: isp2100;ibmx305;dl380g3;dl385g1;dl385g2;unknown;CtiLargeServer TrustedApplications: IPS_001, BasicUnrestricted, AdvancedUnrestricted, DMCUnrestricted; 1XP_001, BasicUnrestricted, AdvancedUnrestricted, DMCUnrestricted; 1XM_001, BasicUnrestricted, AdvancedUnrestricted, DMCUnrestricted; PC_001, BasicUnrestricted, AdvancedUnrestricted, DMCUnrestricted; CIE_001, BasicUnrestricted, AdvancedUnrestricted, DMCUnrestricted; OSPC_001, BasicUnrestricted, AdvancedUnrestricted, DMCUnrestricted; VP_001, BasicUnrestricted, AdvancedUnrestricted, DMCUnrestricted; SAMETIME_001, VALUE_AES_UNIFIED_CC_DESKTOP;; CCE_001, BasicUnrestricted, AdvancedUnrestricted, DMCUnrestricted; CSI_T1_001, BasicUnrestricted, AdvancedUnrestricted, DMCUnrestricted; CSI_T2_001, BasicUnrestricted, AdvancedUnrestricted, DMCUnrestricted; AVAYAVERINT_001, BasicUnrestricted, AdvancedUnrestricted, DMCUnrestricted; CCT_ELITE_CALL_CTRL_001, BasicUnrestricted, AdvancedUnrestricted, DMCUnrestricted, AgentEvents;	Not counted
AES ADVANCED LARGE SWITCH (VALUE_AES_AEC_LARGE_ADVANCED)	2012/12/06	3	0
TSAPI Simultaneous Users (VALUE_AES_TSAPI_USERS)	2012/12/06	1000	3
DLG (VALUE_AES_DLG)	2012/12/06	16	0
Device Media and Call Control (VALUE_AES_DMCC_DMC)	2012/12/06	1000	3
AES ADVANCED MEDIUM SWITCH (VALUE_AES_AEC_MEDIUM_ADVANCED)	2012/12/06	3	0

### 6.3. Administer TSAPI Link

To administer a TSAPI link, select **AE Services > TSAPI > TSAPI Links** from the left pane of the **Management Console**. The **TSAPI Links** screen is displayed, as shown below. Click **Add Link**.

The screenshot shows the Avaya Application Enablement Services Management Console. The top header includes the Avaya logo, the title "Application Enablement Services Management Console", and a welcome message for user "craft" with login details. The left navigation pane shows "AE Services" expanded, with "TSAPI" selected and "TSAPI Links" highlighted. The main content area displays the "TSAPI Links" table with one entry: Link 1, Switch Connection S8800, Switch CTI Link # 1, ASAI Link Version 4, and Security Both. Below the table are buttons for "Add Link", "Edit Link", and "Delete Link".

Link	Switch Connection	Switch CTI Link #	ASAI Link Version	Security
1	S8800	1	4	Both

The **Add TSAPI Links** screen is displayed next.

The **Link** field is only local to the Application Enablement Services server, and may be set to any available number. For **Switch Connection**, select the relevant switch connection from the drop-down list. In this case, the existing switch connection "S8800" is selected. For **Switch CTI Link Number**, select the CTI link number from **Section 5.2**. Retain the default values in the remaining fields, and click **Apply Changes**.

The screenshot shows the "Add TSAPI Links" screen in the Avaya Application Enablement Services Management Console. The left navigation pane is the same as the previous screenshot. The main content area has a form with the following fields: Link (1), Switch Connection (S8800), Switch CTI Link Number (1), ASAI Link Version (4), and Security (Unencrypted). Below the form are buttons for "Apply Changes" and "Cancel Changes".

## 6.4. Disable Security Database

Select **Security > Security Database > Control** from the left pane, to display the **SDB Control for DMCC, TSAPI, JTAPI and Telephony Web Services** screen in the right pane. Uncheck both fields below, and click **Apply Changes**.

The screenshot shows the Avaya Application Enablement Services Management Console. The left navigation pane is expanded to 'Security > Security Database > Control'. The main content area displays the 'SDB Control for DMCC, TSAPI, JTAPI and Telephony Web Services' screen. It contains two unchecked checkboxes: 'Enable SDB for DMCC Service' and 'Enable SDB for TSAPI Service, JTAPI and Telephony Web Services'. Below these is an 'Apply Changes' button. The top right corner shows user information: 'Welcome: User craft', 'Last login: Thu Dec 8 10:38:57 2011 from 20.32.39.20', 'HostName/IP: AES2-S8800/10.32.32.66', 'Server Offer Type: VIRTUAL\_APPLIANCE', and 'SW Version: r6-1-1-30-0'.

## 6.5. Restart TSAPI Service

Select **Maintenance > Service Controller** from the left pane, to display the **Service Controller** screen in the right pane. Check **TSAPI Service**, and click **Restart Service**.

The screenshot shows the Avaya Application Enablement Services Management Console. The left navigation pane is expanded to 'Maintenance > Service Controller'. The main content area displays the 'Service Controller' screen. It contains a table with two columns: 'Service' and 'Controller Status'. The 'TSAPI Service' row is checked. Below the table is a link 'For status on actual services, please use [Status and Control](#)'. At the bottom are buttons: 'Start', 'Stop', 'Restart Service', 'Restart AE Server', 'Restart Linux', and 'Restart Web Server'. The top right corner shows user information: 'Welcome: User craft', 'Last login: Thu Dec 8 10:38:57 2011 from 20.32.39.20', 'HostName/IP: AES2-S8800/10.32.32.66', 'Server Offer Type: VIRTUAL\_APPLIANCE', and 'SW Version: r6-1-1-30-0'.

Service	Controller Status
<input type="checkbox"/> ASAI Link Manager	Running
<input type="checkbox"/> DMCC Service	Running
<input type="checkbox"/> CVLAN Service	Running
<input type="checkbox"/> DLG Service	Running
<input type="checkbox"/> Transport Layer Service	Running
<input checked="" type="checkbox"/> TSAPI Service	Running

## 6.6. Obtain Tlink Name

Select **Security > Security Database > Tlinks** from the left pane. The **Tlinks** screen shows a listing of the Tlink names. A new Tlink name is automatically generated for the TSAPI service. Locate the Tlink name associated with the relevant switch connection, which would use the name of the switch connection as part of the Tlink name. Make a note of the associated Tlink name, to be used later for configuring Noble Systems.

In this case, the associated Tlink name is “AVAYA#S8800#CSTA-S#AES2-S8800”. Note the use of the switch connection “S8800” from **Section 6.3** as part of the Tlink name.

The screenshot displays the Avaya Application Enablement Services Management Console. The top header includes the Avaya logo, the title "Application Enablement Services Management Console", and a welcome message for user "craft" with login details. A red navigation bar contains "Security | Security Database | Tlinks" and links for "Home | Help | Logout". On the left, a sidebar menu shows various categories, with "Security Database" expanded to highlight "Tlinks". The main content area, titled "Tlinks", shows a single entry: "AVAYA#S8800#CSTA#AES2-S8800" with a green status icon and a "Delete Tlink" button.



## 6.7. Administer Noble Systems User

Select **User Management > User Admin > Add User** from the left pane, to display the **Add User** screen in the right pane.

Enter desired values for **User Id**, **Common Name**, **Surname**, **User Password**, and **Confirm Password**. For **CT User**, select “Yes” from the drop-down list. Retain the default value in the remaining fields. Click **Apply** at the bottom of the screen (not shown below).

**AVAYA**

**Application Enablement Services**  
Management Console

Welcome: User craft  
Last login: Thu Dec 8 16:14:33 2011 from 20.32.39.20  
HostName/IP: AES2-S8800/10.32.32.66  
Server Offer Type: VIRTUAL\_APPLIANCE  
SW Version: r6-1-1-30-0

User Management | User Admin | Add UserHome | Help | Logout

▶ AE Services

▶ Communication Manager Interface

▶ Licensing

▶ Maintenance

▶ Networking

▶ Security

▶ Status

▼ User Management

▶ Service Admin

▼ User Admin

▪ Add User

▪ Change User Password

▪ List All Users

▪ Modify Default Users

▪ Search Users

▶ Utilities

▶ Help

Add User

Fields marked with \* can not be empty.

\* User Idnoble

\* Common Namenoble

\* Surnamenoble

\* User Password••••••••

\* Confirm Password••••••••

Admin Note

Avaya RoleNone

Business Category

Car License

CM Home

Css Home

CT UserYes

Department Number

Display Name

Employee Number

Employee Type

## 7. Configure Noble Systems Contact Center Solution

This section provides the procedures for configuring Contact Center Solution. The procedures include the following areas:

- Administer ctidb
- Launch Maestro
- Administer CTI ACD
- Administer CTI skills
- Administer CTI agents
- Administer CTI DNIS

The configuration of Contact Center Solution is typically performed by Noble Systems technicians. The procedural steps are presented in these Application Notes for informational purposes.

### 7.1. Administer ctidb

Log in to the Linux shell of the Contact Center Solution server with the appropriate credentials. Navigate to the **/usr/ctidb** directory, and enter the command “**isql -s ctidb**” as shown below.

```
[xxx@sipfort uddp]# cd /usr/ctidb
[xxx@sipfort ctidb]# isql -s ctidb
```

The screen below is displayed next. Navigate to and select the **Form** option, followed by **Run** and **ctilink** in the two subsequent screens (not shown).

```
ATOMIX-SQL:  Form  Report  Query-Language  User-menu  Database  Table  Exit
Run, Modify, Create, or Drop a form.

----- ctidb ----- Press CTRL-W for Help -----
```

The **PERFORM** screen is displayed next. Navigate to **Add**, and enter the following values for the specified fields.

- **cti\_link:** A descriptive name.
- **cti\_link\_type:** “AVAYA\_TSAPI”
- **cti\_primary\_ip:** “0.0.0.0”
- **cti\_primary\_port:** “0”
- **cti\_client\_id:** The Noble Systems user credentials from **Section 6.7**.
- **cti\_client\_pwd:** The Noble Systems user credentials from **Section 6.7**.
- **cti\_serv\_id:** The Tlink name from **Section 6.6**.

PERFORM:	Query	Next	Previous	Add	Update	Remove	Table	Screen	...
Adds a row to the active database table.					** 1: cti_link table**				
cti_link	[AvayaTest					]			
cti_link_type	[AVAYA_TSAPI					]			
cti_primary_ip	[0.0.0.0					]			
cti_primary_port	[0		]						
cti_secondary_ip	[					]			
cti_secondary_port	[		]						
cti_client_id	[noble					]			
cti_client_pwd	[Noble123#					]			
cti_service	[					]			
cti_perpid	[					]			
cti_use_hb	[		]						
cti_sec_service	[					]			
cti_sec_client_id	[					]			
cti_sec_client_pwd	[					]			
cti_serv_id	[AVAYA#S8800#CSTA#AES2-S8800					]			
cti_sec_serv_id	[					]			

## 7.2. Launch Maestro

From the Contact Center Solution server, launch the Maestro application by double-clicking the **Maestro** icon shown below, which was created as part of installation.

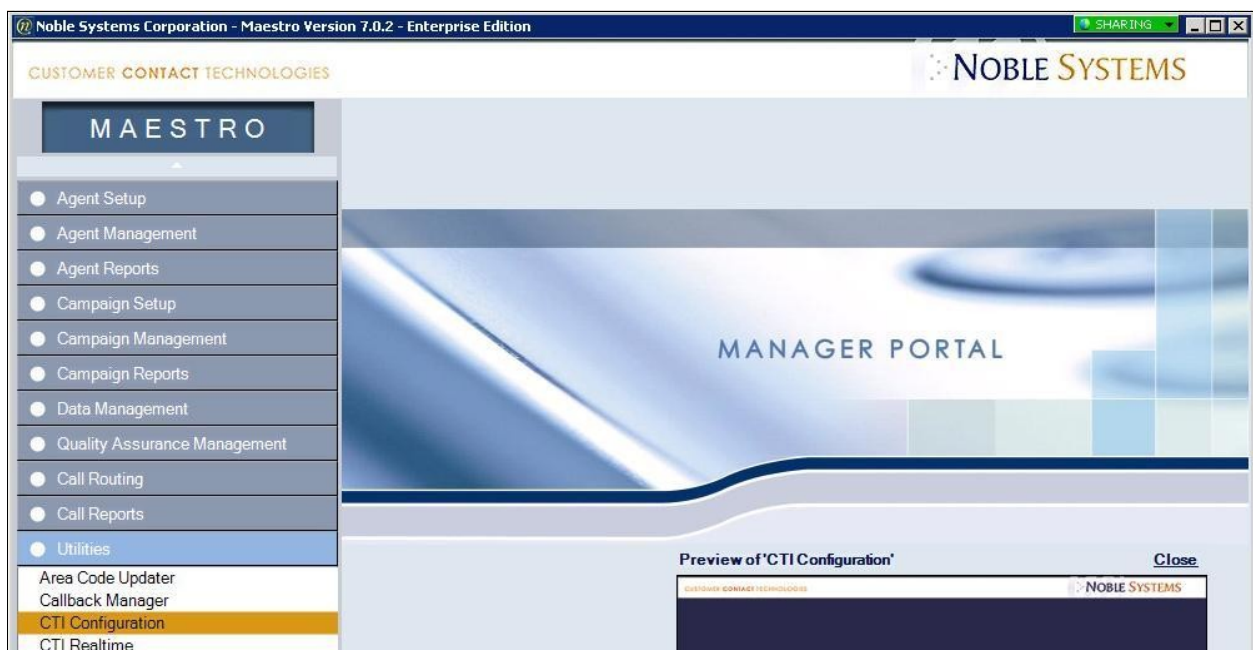


The screen below is displayed. Enter the appropriate credentials.

The image shows the Maestro login screen. It has a dark blue background with a light blue header bar containing 'CUSTOMER CONTACT TECHNOLOGIES' and 'NOBLE SYSTEMS'. The main area contains a 'Username' field, a 'Password' field, and a 'Remember Information' checkbox. Below these are links for 'Change Password', 'Change DSN', 'Login', and 'Cancel'. At the bottom, it displays 'Maestro - Version: 7.0.2.1' and 'Host: sipfort'.

## 7.3. Administer CTI ACD

The **MANAGER PORTAL** screen is displayed next. Double click on **Utilities > CTI Configuration** in the left pane.





The **CTI Main Menu** screen is displayed. Right click in the left pane and select **ACD > Add** from the pop-up boxes.



The pop-up screen below is displayed. For **CTI Link Name**, enter the CTI link name from **Section 7.1**. For **CTI Server Address**, enter the IP address of the server hosting the CTI component, in this case the CTI component is running on the local host.

For **CTI Switch Device**, enter the applicable pre-configured switch device, which is “2” in the compliance testing. Retain the default values in the remaining fields.

## 7.4. Administer CTI Skills

The **CTI Main Menu** screen is updated as shown below. Right click on **Skills** in the left pane, and select **Skill > Add** from the pop-up boxes.



The pop-up screen below is displayed. For **Skill Name**, enter a desired name. For **ACD Extension**, enter the first skill group extension from **Section 3**, in this case “65555”. For **Routing Resource**, enter the first VDN extension from **Section 3**, which is “65500” in the compliance testing. Check and set the **Max. Num. Calls Queued** and **Min. Num. Calls Queued** parameters as shown below, and retain the default values in the remaining fields.

Repeat this section for all skill groups in **Section 3**. In the compliance testing, two skill groups with extensions “65555” and “65556” were configured.

<b>Skill Name:</b> <input type="text" value="555"/>		<a href="#">Remove this Skill</a>
<b>ACD Extension:</b> <input type="text" value="65555"/>	<b>Routing Resource:</b> <input type="text" value="65500"/>	
<b>Demand Based Swing</b>   <b>Agent Movement</b>   <b>Non-Demand Based Swing</b>   <b>Add Agents</b>		
<b>Inbound Swing Thresholds</b>		
<input type="checkbox"/> Min. Num. Agents Logged In:	<input type="text" value="0"/>	
<input type="checkbox"/> Min. % Agents Logged In:	<input type="text" value="0"/>	%
<input type="checkbox"/> Min. Num. Agents Avail.:	<input type="text" value="0"/>	
<input type="checkbox"/> Min. % Agents Avail.:	<input type="text" value="0"/>	%
<input checked="" type="checkbox"/> <b>Max. Num. Calls Queued:</b>	<input type="text" value="0"/>	
<input type="checkbox"/> Max. % Calls Queued:	<input type="text" value="0"/>	%
<input type="checkbox"/> % Inbound Abandoned Calls:	<input type="text" value="0"/>	%
<input type="checkbox"/> Avg. Speed of Answer (ASA):	<input type="text" value="0"/>	sec.
<input checked="" type="radio"/> Use All <input type="radio"/> Use Only Answered		
<input type="checkbox"/> Custom Formula:		
<div></div>		
<b>Evaluation Freq.:</b> <input type="text" value="5"/> sec.		
<b>Outbound Swing Thresholds</b>		
<input type="checkbox"/> Max. Num. Agents Logged In:	<input type="text" value="0"/>	
<input type="checkbox"/> Max. % Agents Logged In:	<input type="text" value="0"/>	%
<input type="checkbox"/> Max. Num. Agents Avail.:	<input type="text" value="0"/>	
<input type="checkbox"/> Max. % Agents Avail.:	<input type="text" value="0"/>	%
<input checked="" type="checkbox"/> <b>Min. Num. Calls Queued:</b>	<input type="text" value="1"/>	
<input type="checkbox"/> Min. % Calls Queued:	<input type="text" value="0"/>	%
<input type="checkbox"/> % Inbound Abandoned Calls:	<input type="text" value="0"/>	%
<input type="checkbox"/> Avg. Speed of Answer (ASA):	<input type="text" value="0"/>	sec.
<input checked="" type="radio"/> Use All <input type="radio"/> Use Only Answered		
<input type="checkbox"/> Custom Formula:		
<div></div>		
<b>Evaluation Freq.:</b> <input type="text" value="5"/> sec.		

## 7.5. Administer CTI Agents

From the **CTI Main Menu** screen, right-click on **Agents[LoginID]** in the left pane, and select **Agents > Add** from the pop-up boxes.



The pop-up screen below is displayed. Select the first desired agent in the left pane, in this case “T1 – Noble MGR”, and drag over to the **ATOMS Agent ID** field in the top right pane.

**Available Agents**

**ATOMS Agent ID:**   [Remove this Agent](#)

**Agents** | **Skills**

**Agents**

- T1 - Noble MGR
- T10 - TEST
- T11 - TEST
- T12 - TEST
- T13 - TEST
- T14 - TEST
- T15 - TEST
- T16 - TEST
- T17 - TEST
- T18 - TEST
- T19 - TEST
- T2 - TEST
- T21 - TEST
- T22 - TEST
- T23 - TEST
- T24 - TEST
- T25 - TEST
- T26 - TEST
- T27 - TEST
- T28 - TEST
- T29 - TEST
- T3 - TEST
- T30 - TEST
- T4 - TEST

Sort by: **ATOMS Agent ID**

**Agent Profile**

Login ID:

Password:

Position ID:

COS:

Supervisor Team:

Blending Active: **Yes**

Agent Duty Type: **Blended**

Initial Blend Duty: **Outbound**

Monitor On Startup: **No**

Agent Active: **No**

IP Agent: **No**

**Assigned skills**

**Inbound Profile**

Auto Ready: **Auto-In**

Init. Min. Stay Time:  0 sec.

Min. Stay Time:  0 sec.

**Outbound Profile**

Auto Ready: **Yes**

Init. Min. Stay Time:  0 sec.

**Cancel** **Commit**

The screen is updated as shown below, with the **Skills** tab selected in the left pane.

Available Skill		ATOMS Agent ID: T1 Noble MGR <a href="#">Remove this Agent</a>	
<div>Agents Skills</div> <div>555</div> <div>556</div>	<b>Agent Profile</b> Login ID: <input type="text"/> Password: <input type="text"/> Position ID: <input type="text"/>	<b>Assigned skills</b> <div></div>	

Click and drag the applicable skills from the left pane to the right pane. In the middle pane, for **Login ID** and **Password**, enter the first agent ID credentials from **Section 3**. For **Position ID**, enter “0”. Retain the default values for the remaining fields.

Repeat this section for all agents in **Section 3**. In the compliance testing, two agents with IDs of “T1” and “T2” were configured, and both with the same position ID of “0”.

Available Skill		ATOMS Agent ID: T1 Noble MGR <a href="#">Remove this Agent</a>	
<div>Agents Skills</div> <div></div>	<b>Agent Profile</b> Login ID: <input type="text" value="65881"/> Password: <input type="text" value="•••••"/> Position ID: <input type="text" value="0"/> COS: <input type="text"/> Supervisor Team: <input type="text"/> Blending Active: <input type="text" value="Yes"/> Agent Duty Type: <input type="text" value="Blended"/> Initial Blend Duty: <input type="text" value="Outbound"/> Monitor On Startup: <input type="text" value="No"/> Agent Active: <input type="text" value="No"/> IP Agent: <input type="text" value="No"/>	<b>Assigned skills</b> <div>555 (1)</div> <div>556 (1)</div>	
	<b>Inbound Profile</b> Auto Ready: <input type="text" value="Auto-In"/> Init. Min. Stay Time: <input type="text" value="0"/> sec. Min. Stay Time: <input type="text" value="0"/> sec.	<b>Outbound Profile</b> Auto Ready: <input type="text" value="Yes"/> Init. Min. Stay Time: <input type="text" value="0"/> sec.	
		<a href="#">Cancel</a> <a href="#">Commit</a>	

## 7.6. Administer CTI DNIS

From the **CTI Main Menu** screen, right-click on **DNIS** in the left pane, and select **DNIS > Add** from the pop-up boxes.



The pop-up screen below is displayed. Enter the following values for the specified fields.

- **DNIS:** The first DNIS from **Section 3**.
- **List ID:** “1”
- **Description:** A desired description.
- **Group:** “1”
- **Application:** Select the applicable pre-configured application.

Repeat this section for all DNIS in **Section 3**. In the compliance testing, two DNIS with digits “6137717521” and “6137717522” were configured, and both with the same list ID and group.

## 8. Verification Steps

This section provides tests that can be performed to verify proper configuration of Communication Manager, Application Enablement Services, and Contact Center Solution.

### 8.1. Verify Avaya Aura® Communication Manager

On Communication Manager, verify status of the administered CTI link by using the “status aesvcs cti-link” command. Verify that **Service State** is “established” for the CTI link number administered in **Section 5.2**, as shown below.

```
status aesvcs cti-link
```

AE SERVICES CTI LINK STATUS						
CTI Link	Version	Mnt Busy	AE Services Server	Service State	Msgs Sent	Msgs Rcvd
<b>1</b>	<b>4</b>	<b>no</b>	<b>AES2-S8800</b>	<b>established</b>	<b>1154</b>	<b>1139</b>

Verify monitoring status of the agent station extensions by using the “list monitored-station” command. Verify that all agent station extensions from **Section 3** are displayed, as shown below.

```
list monitored-station
```

MONITORED STATION							
Station Ext	Association 1		Association 2		Association 3		Association 4
	CTI Link	CRV	CTI Link	CRV	CTI Link	CRV	CTI Link CRV
-----	-----		-----		-----		-----
<b>65001</b>	<b>1</b>	<b>24</b>					
<b>65002</b>	<b>1</b>	<b>63</b>					

## 8.2. Verify Avaya Aura® Application Enablement Services

On Application Enablement Services, verify status of the TSAPI link by selecting **Status > Status and Control > TSAPI Service Summary** from the left pane. The **TSAPI Link Details** screen is displayed.

Verify that **Status** is “Talking”, and that **Associations** reflect the total number of VDNs and agent station extensions from **Section 3**.

**AVAYA**

**Application Enablement Services**  
Management Console

Welcome: User craft  
Last login: Thu Dec 15 17:21:10 2011 from 20.32.39.20  
HostName/IP: AES2-S8800/10.32.32.66  
Server Offer Type: VIRTUAL\_APPLIANCE  
SW Version: r6-1-1-30-0

Status | Status and Control | TSAPI Service SummaryHome | Help | Logout

▶ AE Services

▶ Communication Manager Interface

▶ Licensing

▶ Maintenance

▶ Networking

▶ Security

▼ Status

Alarm Viewer

▶ Logs

▼ Status and Control

▪ CVLAN Service Summary

▪ DLG Services Summary

▪ DMCC Service Summary

▪ Switch Conn Summary

▪ **TSAPI Service Summary**

TSAPI Link Details

☐ Enable page refresh every 60 seconds

	Link	Switch Name	Switch CTI Link ID	Status	Since	State	Switch Version	Associations	Msgs to Switch	Msgs from Switch	Msgs Period
	1	S8800	1	Talking	Wed Dec 7 11:02:52 2011	Online	16	4	1141	1156	30

For service-wide information, choose one of the following:



### 8.3. Verify Noble Systems Contact Center Solution

From the agent PC, access the Composer web-based interface by using the URL “http://ip-address/NobleWebAgentCTI” in an Internet browser window, where “ip-address” is the IP address of the Composer Web Server. The **Welcome to Composer 9** screen is displayed. Log in using the appropriate credentials. Click **Login**.

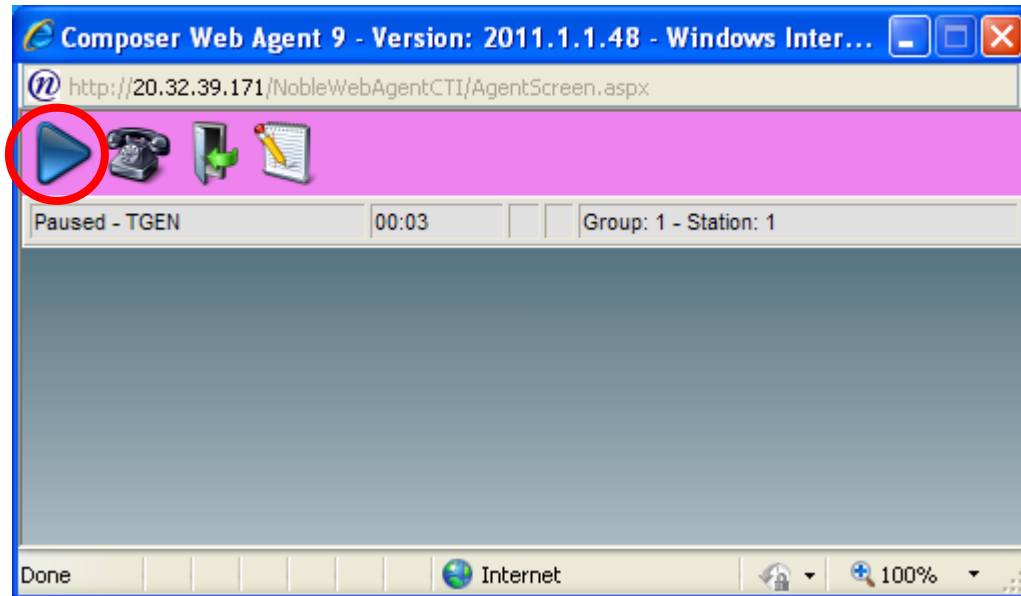


The pop-screen below is displayed. For **User Name** and **Password**, enter the appropriate agent credentials. For **Group**, select the group number from **Section 7.6**. Select “Inbound” for **CTI Mode**, and “Phone” for **Ext Type**. For **Extension**, enter the applicable agent station extension from **Section 3**, and click **Log On**.

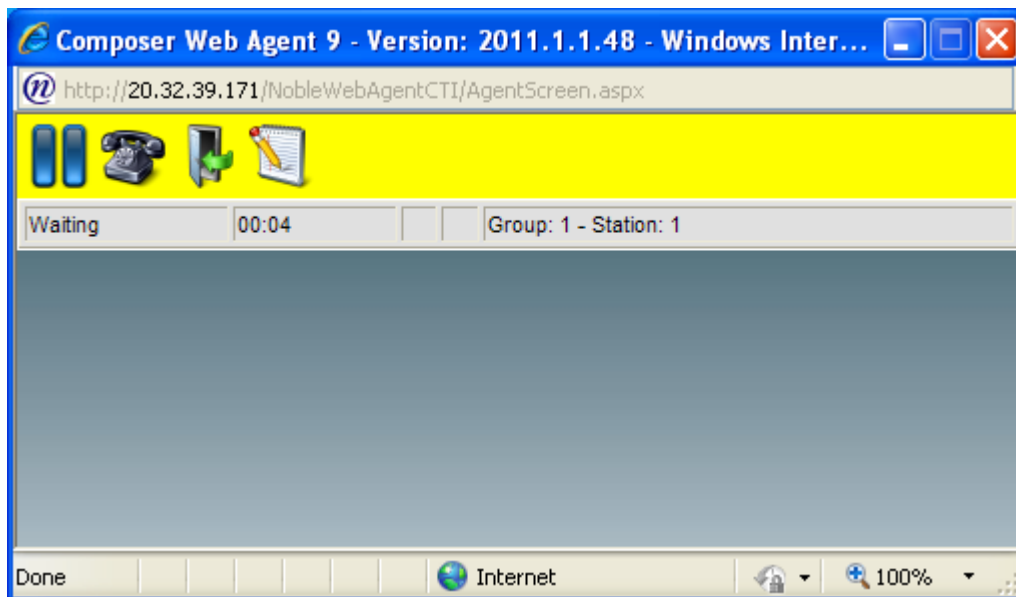




The screen is updated as shown below. Click on the **Resume** icon to log into the skill group.



Verify the screen is updated to reflect agent successfully logged into Communication Manager, and is waiting for a call, as shown below.



Make an incoming ACD call from the PSTN. Verify that the call is delivered to the agent's telephone and automatically answered by Contact Center Solution with two-way talk paths, and that the agent screen is updated to reflect the connected call as shown below.



## 9. Conclusion

These Application Notes describe the configuration steps required for Noble Systems Contact Center Solution to successfully interoperate with Avaya Aura® Communication Manager using Avaya Aura® Application Enablement Services. All feature and serviceability test cases were completed with observations noted in **Section 2.2**.

## 10. Additional References

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

1. *Administering Avaya Aura™ Communication Manager*, Document 03-300509, Issue 6.0, Release 6.0, June 2010, available at <http://support.avaya.com>.
2. *Avaya Aura® Application Enablement Services Administration and Maintenance Guide*, Release 6.1, Issue 2, February 2011, available at <http://support.avaya.com>.
3. *Noble Systems Composer 9 version 2011.1.1 User Manual*, Revised June 27, 2011, available at <http://nobleusersgroup.noblesys.com>.

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