



Avaya Solution & Interoperability Test Lab

Application Notes for AMC Contact Canvas using Avaya Interaction Center 7.3 – Issue 1.2

Abstract

These Application Notes describe the configuration steps required to integrate the Avaya Interaction Center with a 3rd party CRM application using the AMC Driver for Avaya Interaction Center. The AMC Driver for Avaya Interaction Center (IC) provides CTI integration to business applications from Microsoft, Oracle, Salesforce and SAP. The AMC Contact Canvas Server(CCS) brings call control, agent session control and screen pop together to help make contact center agents more efficient and to realize higher levels of customer satisfaction.

Readers should pay attention to **Section 2**, in particular the scope of testing as outlined in **Section 2.1** as well as any 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 the Avaya Interaction Center with a 3rd party CRM application using the AMC Driver for Avaya Interaction Center. The AMC Driver for Avaya Interaction Center (IC) provides CTI integration to business applications from Microsoft, Oracle, Salesforce and SAP. The AMC Contact Canvas Server(CCS) brings call control, agent session control and screen pop together to help make contact center agents more efficient and to realize higher levels of customer satisfaction. For this compliance test, the AMC Driver was used to integrate Avaya Interaction Center with the following business applications.

1. Salesforce.com
2. Desk.com
3. Oracle Siebel
4. Oracle RightNow CX
5. MS CRM 2015
6. SAPCRM7 EHP3

The AMC Driver for IC has two components, one which is installed on the IC server as a service and a second which resides on the AMC CCS server; the two components communicate across named pipes.

AMC's CCS is built upon component architecture using a Driver / adapter pattern: Drivers integrate contact channels, such as Avaya Interaction Center, and adapters integrate business applications, such as Salesforce or SAPWeb. This provides a "future proof" foundation with the flexibility to upgrade existing channels and applications or to move to or incorporate new or different channels and applications, and the scalability to integrate contact centers of all size, small, medium, large and enterprise / multi-site.

2. General Test Approach and Test Results

To verify interoperability of the AMC Driver with Application Interaction Center, the 6 different CRM applications were used. An example is the SAPWeb/CRM7 is one of the business applications. All these business application allowed the functionality available in the AMC Driver to be verified, including logging in and out of a skill, placing and disconnecting calls, exercising basic telephony features, agent session control, and screen pop. The features listed in **Section 2** were covered.

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 test verified the following feature functionality available to agents with the AMC Driver for IC.

- Logging in and out of a skill/split.
- Monitoring agent states (e.g., Ready or Not Ready).
- Agent synchronization with agent hardphones.
- Establishing calls with other agents and non-monitored devices and verifying the correct call states.
- Screen pop consisting of customer or business partner information using ANI for calls.
- Basic telephony features such as call hold/resume, blind/consultative transfer, and conference.
- Restarting the AMC Driver.

2.2. Test Results

All test cases were executed and passed. The observation noted was the agent has to be already log in via the hardphone before agent can be synchronized with the CRM application during the compliance testing.

2.3. Support

Technical support on the AMC Driver can be obtained through the following:

- **Phone:** (800) 390-4866
- **Email:** support@amctechnology.com

Reference Configuration **Figure 1** on the next page illustrates the configuration used for testing. In this configuration, a call center environment integrated with CRM Servers using the AMC Driver for Avaya Interaction Center. The configuration includes Avaya Interaction Center (IC), Avaya Aura® Application Enablement Services (AES), and a pair of Avaya Aura® Communication Managers with G650 Media Gateway and Avaya Aura® Media Server. Communication Manager routes incoming calls to Avaya IC agents and AES is used to establish a CVLAN link between Communication Manager and IC. Avaya 9600 series IP Deskphones were used as hardphones for the agents. In addition, the agent's interaction center includes CRM Web client and separate servers containing the AMC Multi-Channel Integration Server/CCS with the AMC Driver and the CRM server.

Device Type	Value
Skill Group Number	1
Skill Group Extension	13001
Vector Directory Number (VDN)	14001
Agent IDs	11001 and 11002
Agent Station Extensions	10001 and 10002

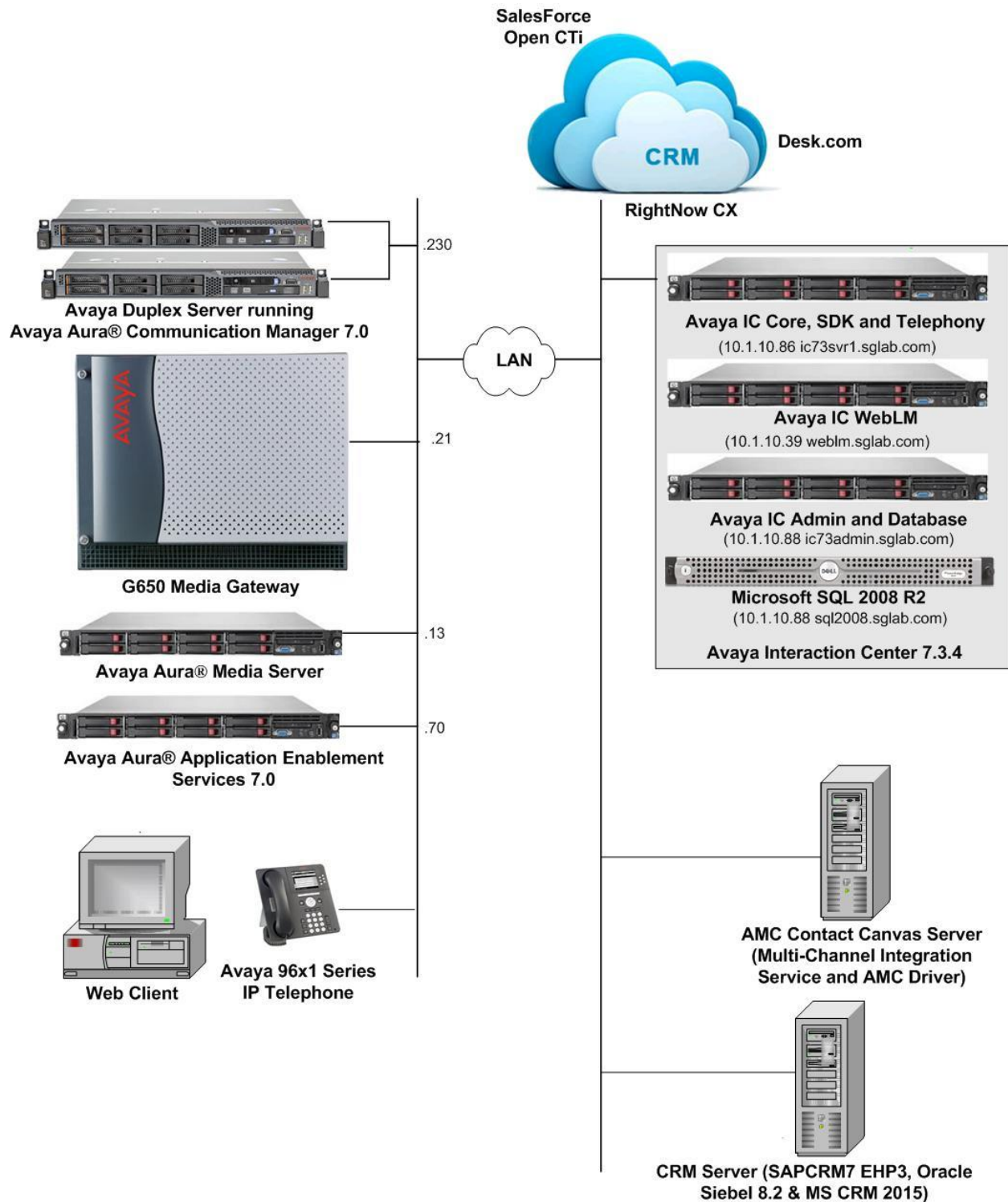


Figure 1: Configuration with Avaya IC and AMC CCS

3. Equipment and Software Validated

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

Equipment/Software	Release/Version
Avaya Aura® Communication Manager (w/ G650 Media Gateway)	7.0.0.2.0-SP3.1 (Build R017x. 00.0.441.0-22903)
Avaya Aura® Media Server	7.7.0.15
Avaya Interaction Center	7.3.4
Avaya Aura® Application Enablement Services	7.0.0.0.2.13
Avaya 9600 Series H.323 IP Deskphone	6.6029
AMC Driver for Avaya Aura® Application Enablement Services/Avaya Interaction Center	6.5.0.1
SAPCRM7 EHP3	6.5.0.3
Oracle Siebel 8.2	6.5.0.5
Salesforce.com	6.5.0.10
MS CRM 2015	6.5.0.4
Oracle RightNow CX	6.5.0.1
Desk.com	6.5.0.4

Note: The Avaya Aura® servers including Avaya Interaction Server used in the reference configuration and shown on the table were deployed on a virtualized environment. These Avaya components ran as virtual machines over VMware® (ESXi 5.X) platforms.

4. Configure Aura® Avaya Communication Manager

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

- Administer Agent Hunt Group
- Administer Vector and VDN
- Administer Agent Station
- Administer Agent IDs

4.1. Administer Agent Hunt Group

Administer an agent hunt group. Agents will log into this split to handle calls coming into the call center. Use the “add hunt-group n” command, where “n” is an available hunt group number. Configure the hunt group as shown below.

- **Group Name:** [Enter a descriptive name]
- **Group Extension:** [Enter an available extension for the group]
- **Group Type:** **ead-mia** [Expert Agent Distribution – Most Idle Agent call distribution]
- **ISDN/SIP Caller Display:** **grp-name**
- **ACD:** **y**
- **Queue:** **y**
- **Vector:** **y**

Leave the default values for all remaining fields.

add hunt-group 1		Page 1 of 4	
HUNT GROUP			
Group Number:	1	ACD?	y
Group Name:	Sales	Queue?	y
Group Extension:	13001	Vector?	y
Group Type:	ead-mia		
TN:	1		
COR:	1	MM Early Answer?	n
Security Code:		Local Agent Preference?	n
ISDN/SIP Caller Display:	grp-name		
Queue Limit:	unlimited		
Calls Warning Threshold:	Port:		
Time Warning Threshold:	Port:		

Navigate to **Page 2** and set the Skill field to 'y'.

add hunt-group 1	HUNT GROUP	Page 2 of 4
Skill? y	Expected Call Handling Time (sec): 180	
AAS? n	Service Level Target (% in sec): 80 in 20	
Measured: both		
Supervisor Extension: 11003		
Controlling Adjunct: none		
VuStats Objective:		
Multiple Call Handling: none		
Timed ACW Interval (sec):	After Xfer or Held Call Drops? n	

4.2. Administer Vector and VDN

Modify an available vector using the “change vector n” command, where “n” is an existing vector number. The vector will be used to route calls to agents logged into skill 1.

change vector 1	CALL VECTOR	Page 1 of 6
Number: 1	Name: Sales	
Multimedia? n	Attendant Vectoring? n	Meet-me Conf? n Lock? n
Basic? y	EAS? y G3V4 Enhanced? y	ANI/II-Digits? y ASAI Routing? y
Prompting? y	LAI? y G3V4 Adv Route? y	CINFO? y BSR? y Holidays? y
Variables? y	3.0 Enhanced? y	
01 wait-time	2 secs hearing ringback	
02 queue-to	skill 1 pri m	
03 wait-time	900 secs hearing music	
04 disconnect	after announcement none	
05		

Add a VDN using the “add vdn n” command, where “n” is an available extension number. Enter a descriptive **Name** and the vector number from above for **Destination**. Retain the default values for all remaining fields.

add vdn 14001	VECTOR DIRECTORY NUMBER	Page 1 of 3
Extension: 14001		
Name*: Sales		
Destination: Vector Number	1	
Attendant Vectoring? n		
Meet-me Conferencing? n		
Allow VDN Override? y		
COR: 1		
TN*: 1		
Measured: both		
Acceptable Service Level (sec): 20		

4.3. Administer Agent Stations

Below is the configuration of the agent station. Enter the appropriate **Station Type** and descriptive **Name**. Enter the **Security Code** for station login. Leave the rest as default. Repeat this step for each agent in the call center.

add station 10001		Page 1 of 5
STATION		
Extension: 10001	Lock Messages? n	BCC: 0
Type: 9611G	Security Code: *****	TN: 1
Port: IP	Coverage Path 1:	COR: 1
Name: 10001	Coverage Path 2:	COS: 1
	Hunt-to Station:	Tests? y
STATION OPTIONS		
Location:	Time of Day Lock Table:	
Loss Group: 19	Personalized Ringing Pattern: 1	
	Message Lamp Ext: 10001	
Speakerphone: 2-way	Mute Button Enabled? y	
Display Language: english	Button Modules: 0	
Survivable GK Node Name:		
Survivable COR: internal	Media Complex Ext:	
Survivable Trunk Dest? y	IP SoftPhone? y	
	IP Video Softphone? n	
	Short/Prefixed Registration Allowed: default	
	Customizable Labels? y	

4.4. Administer Agent IDs

Add an **Agent Login ID** for each agent in the call center using the “add agent-loginID n” command, where “n” is a valid agent ID that adheres to the dial plan. Enter a descriptive name on the **Name** field. Specify the **Password** used by the agent to log into the split and **enter again** to confirm the password.

add agent-loginID 11001		Page 1 of 3
AGENT LOGINID		
Login ID: 11001	AAS? n	
Name: Alice	AUDIX? n	
TN: 1	Check skill TNs to match agent TN? n	
COR: 1		
Coverage Path:	LWC Reception: spe	
Security Code:	LWC Log External Calls? n	
	AUDIX Name for Messaging:	
	LoginID for ISDN/SIP Display? n	
	Password: 1234	
	Password (enter again): 1234	
	Auto Answer: none	
	MIA Across Skills: system	
	ACW Agent Considered Idle: system	
	Aux Work Reason Code Type: system	
	Logout Reason Code Type: system	
	Maximum time agent in ACW before logout (sec): system	
	Forced Agent Logout Time: :	

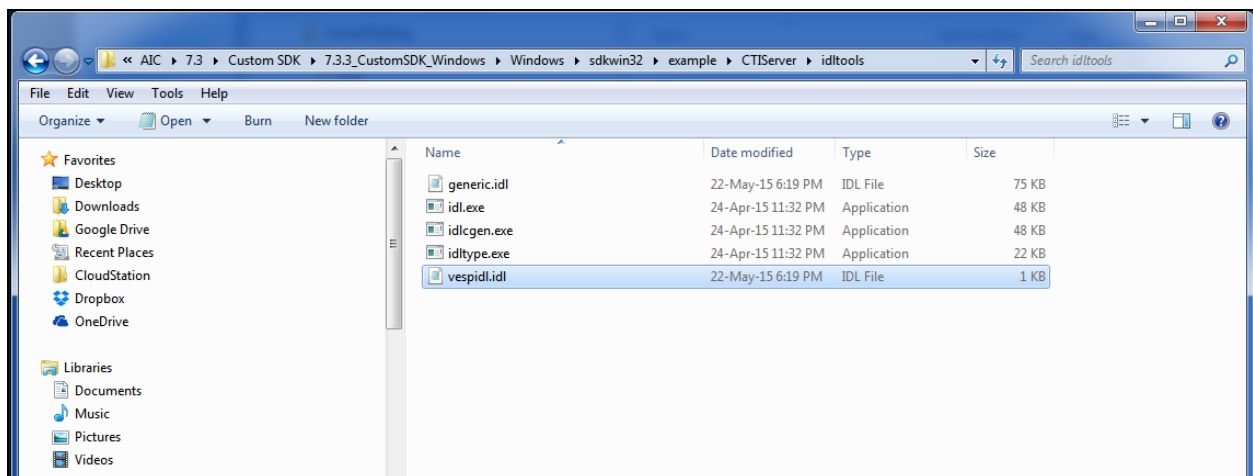
On **Page 2**, specify the skill number **SN** and skill level **SL** to which the agent will log in. Leave the rest as default. In the example, the agent will log into skill 1 level 1. Repeat this step for each agent in the call center.

add agent-loginID 11001										Page 2 of 3				
AGENT LOGINID														
Direct Agent Skill:										Service Objective? n				
Call Handling Preference: skill-level										Local Call Preference? n				
SN	RL	SL		SN	RL	SL		SN	RL	SL		SN	RL	SL
1: 1		1		16:				31:				46:		
2:				17:				32:				47:		
3:				18:				33:				48:		
4:				19:				34:				49:		
5:				20:				35:				50:		
6:				21:				36:				51:		
7:				22:				37:				52:		
8:				23:				38:				53:		
9:				24:				39:				54:		
10:				25:				40:				55:		
11:				26:				41:				56:		
12:				27:				42:				57:		
13:				28:				43:				58:		
14:				29:				44:				59:		
15:				30:				45:				60:		

5. Configure Avaya Interaction Center

This section covers the configuration of Avaya IC. It is assumed that Avaya IC has been installed and configured as described in [1] and [2]. This solution only requires the voice media channel to be configured. In addition, IC requires a CVLAN link to Application Enablement Services, which in turn has a CVLAN link to Communication Manager. This will not be detailed here as this should be configured for an IC. Refer to Additional references [4] for more details.

- Obtain the latest ORB (Object Request Broker) Toolkit and in this compliance testing, from the file “7.3.3_CustomSDK_All_Platforms.zip” available in Avaya support <https://support.avaya.com/>.
- Unzip this file to a working directory and in the idltools directory (see screenshot below). Copy the vespidl.idl and name it say vespidl_AMC.idl



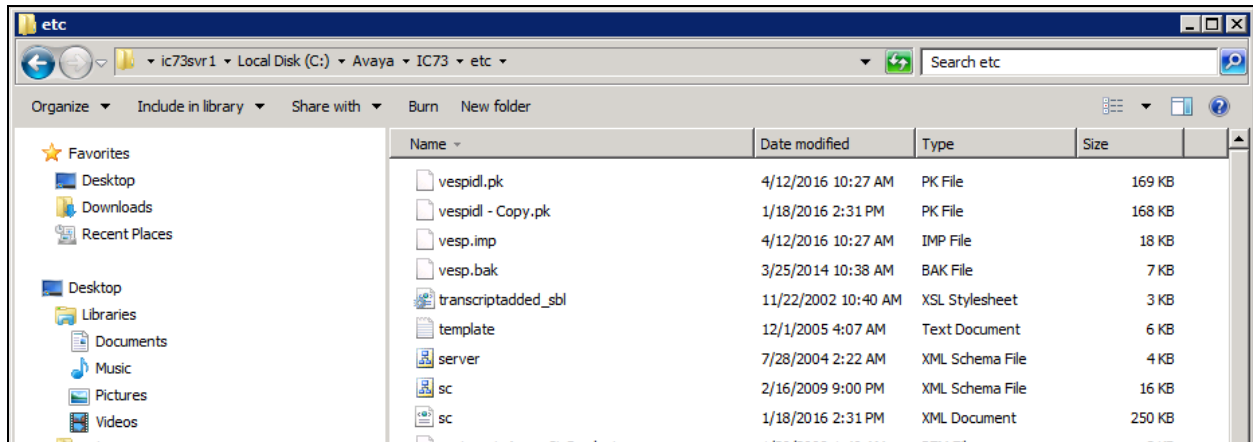
- Edit the *vespidl_AMC.idl* using text editor. The IDL file may be different and have additional “includes” and “interfaces”. DO NOT CHANGE EXISTING SETTINGS. Add the AMCCTI interface to the end of the file.

```
/*
*****
* Copyright (c) 1994-1999 Nabnasset Corporation USA
* All rights Reserved
*****
* Name: vespidl.idl
* Purpose in life: IDL Customers put their custom servers here.
*****/

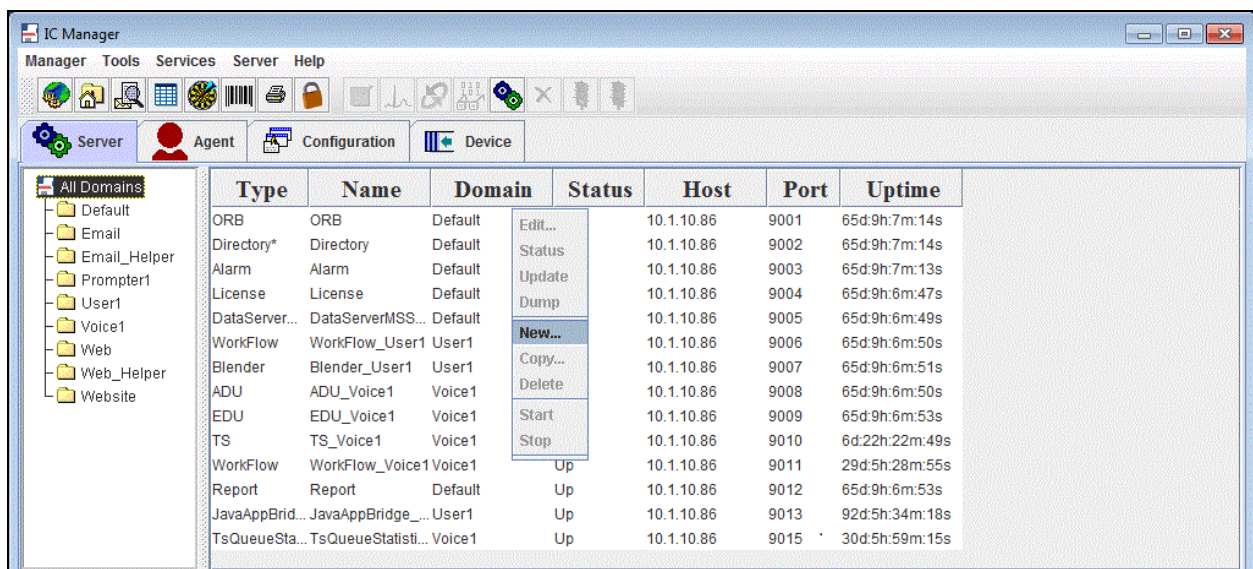
#include "generic.idl"

interface AMCCTI : GeneralS
{
}
```

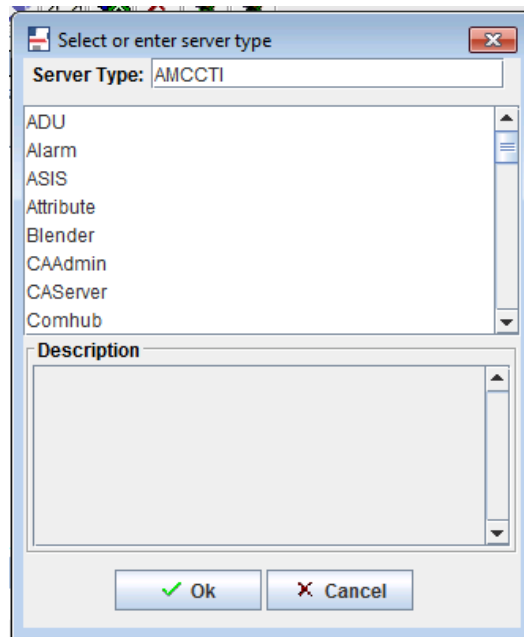
- In DOS prompt, run the command "**idl -c vespidl_AMC**" (not shown) and obtain the file "**vespidl_AMC.pk**".
- Rename the output file "**vespidl_AMC.pk**" to "**vespidl.pk**".
- Backup the current copy of the "**vespidl.pk**" in the directory "**C:\Avaya\IC73\etc**" to another name say "**vespidl - Copy.pk**" as below and replace with the new compiled file.



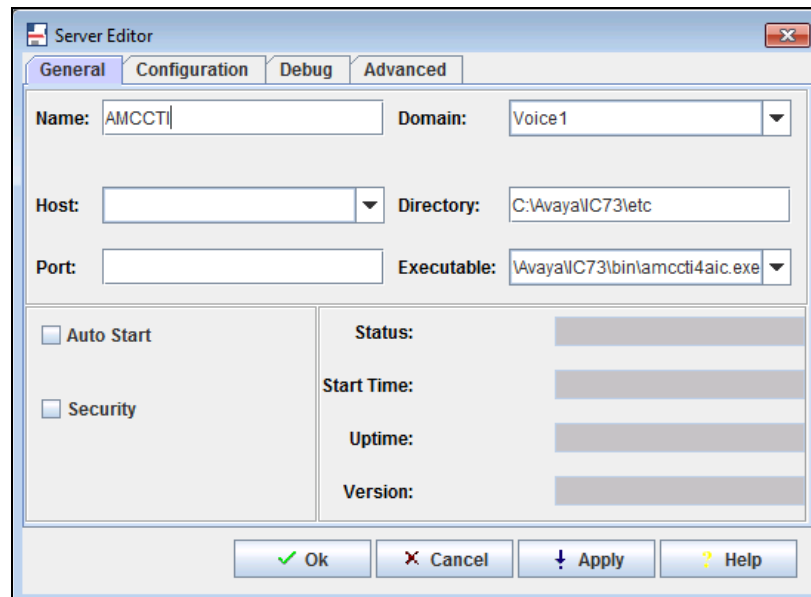
- Copy the "**amccti4aic.exe**" obtained from AMC Technology to the directory "**C:\Avaya\IC73\bin**".
- Open the IC Manager and click on **Server** tab on the top left.
- Select **All Domains** on the left pane. Right click and select **New** on the right pane as shown.



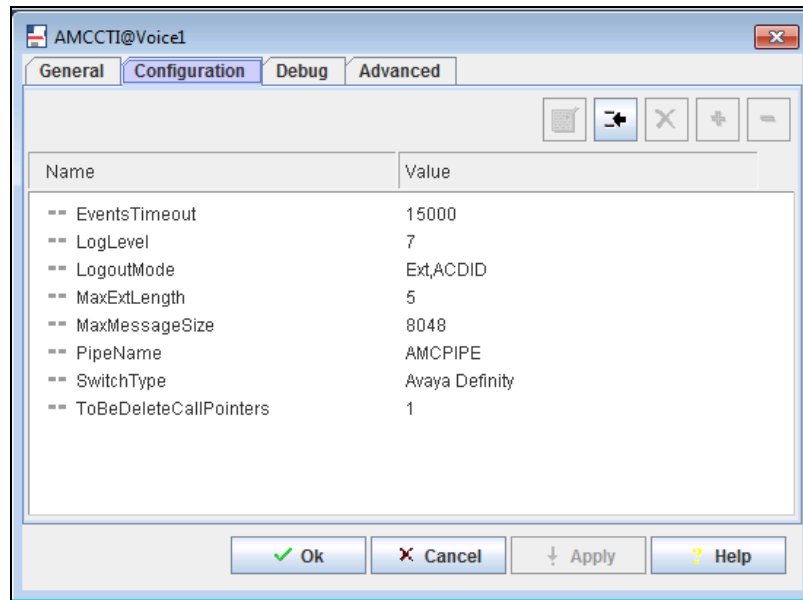
- Enter **AMCCTI** on the **Server Type**.



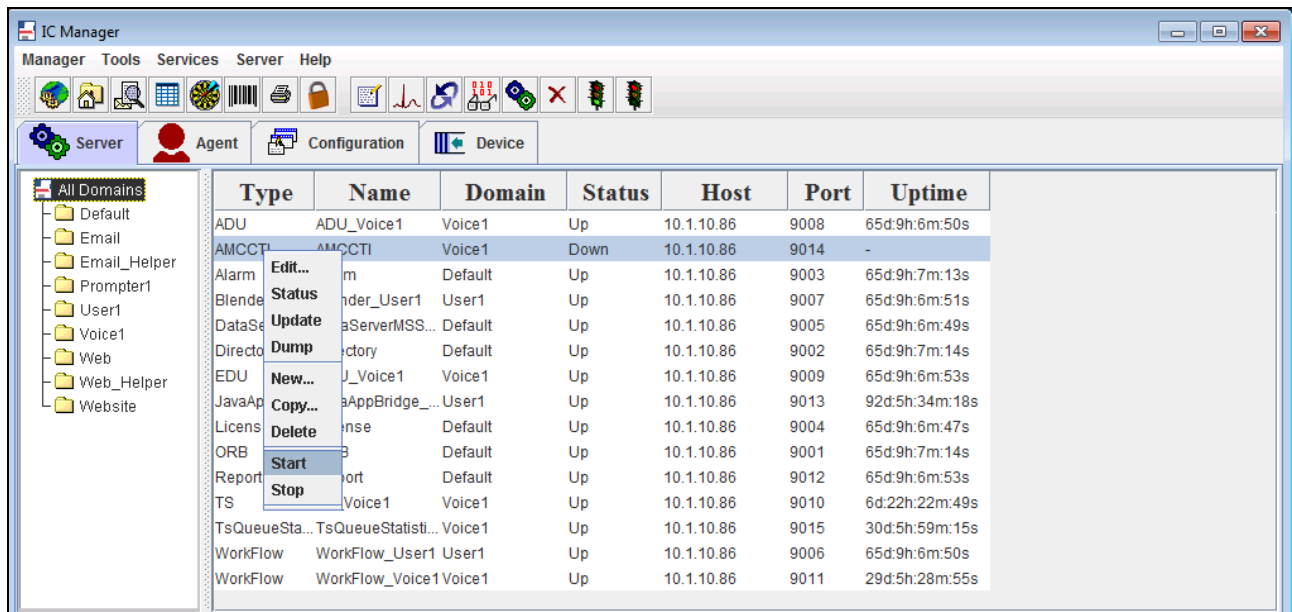
- Select the **General** tab. Configure the server as below.



- Select the **Configuration** tab. Configure the parameters as shown below. Click **OK** to save the configuration.



- Click on the row for **Type AMCCTI** again and right click to select **Start**.



- Right click again on the same row and select **Status** (not shown) to check AMCCTI server status is **Up**.

The screenshot shows the IC Manager application window. The 'Server' tab is selected, and the 'All Domains' tree on the left is expanded. The main table displays a list of services with columns for Type, Name, Domain, Status, Host, Port, and Uptime. The 'AMCCTI' service is highlighted in blue, indicating it is the selected item. The status of the AMCCTI service is 'Up'.

Type	Name	Domain	Status	Host	Port	Uptime
ADU	ADU_Voice1	Voice1	Up	10.1.10.86	9008	65d:9h:6m:50s
AMCCTI	AMCCTI	Voice1	Up	10.1.10.86	9014	5s
Alarm	Alarm	Default	Up	10.1.10.86	9003	65d:9h:7m:13s
Blender	Blender_User1	User1	Up	10.1.10.86	9007	65d:9h:6m:51s
DataServer...	DataServerMSS...	Default	Up	10.1.10.86	9005	65d:9h:6m:49s
Directory*	Directory	Default	Up	10.1.10.86	9002	65d:9h:7m:14s
EDU	EDU_Voice1	Voice1	Up	10.1.10.86	9009	65d:9h:6m:53s
JavaAppBrid...	JavaAppBridge_...	User1	Up	10.1.10.86	9013	92d:5h:34m:18s
License	License	Default	Up	10.1.10.86	9004	65d:9h:6m:47s
ORB	ORB	Default	Up	10.1.10.86	9001	65d:9h:7m:14s
Report	Report	Default	Up	10.1.10.86	9012	65d:9h:6m:53s
TS	TS_Voice1	Voice1	Up	10.1.10.86	9010	6d:22h:22m:49s
TsQueueSta...	TsQueueStatisti...	Voice1	Up	10.1.10.86	9015	30d:5h:59m:15s
WorkFlow	WorkFlow_User1	User1	Up	10.1.10.86	9006	65d:9h:6m:50s
WorkFlow	WorkFlow_Voice1	Voice1	Up	10.1.10.86	9011	29d:5h:28m:55s

At the bottom of the window, a status bar indicates 'Ready' and 'Server has started:: AMCCTI (10.1.10.86:9014 569dd82f000000000a010a56233600)'.

6. Configure AMC Driver for Avaya Interaction Center

This section covers the procedure for configuring the CCS. It is assumed that the Data Integration Service has already been installed on a separate server. The following screen shows that the software was installed.

- Place the **AMCPipeConnector.exe** in the C:\Program Files\AMC Technology\Drivers\AIC Driver directory.
- Check the **config.ini** in the C:\Program Files\AMC Technology\MCIS directory for those parameters highlighted below. Configuration will be done by AMC engineer.

```
#####
# CCS Configuration file: Config.ini for SFDC OpenCTI and AIC
# CCS Release 6.5.0.1
#
#####

...

### MCIS CORE ###

ModuleClass=AgentManagerClass,AgentManager.AMCAgentManagerModule
ModuleClass=DataStoreClass,DataStore.AMCMemoryDataStore
ModuleClass=EventManagerClass,AMCEventManagerModule.AMCEventManagerModule
ModuleClass=LicenseManagerClass,LicenseManager.AMCLicenseManagerModule
ModuleClass=WorkManagerClass,WorkManager.AMCWorkManager
ModuleClass=StandardizedClass,AMCMultiChannelInterface.AMCApplication
ModuleClass=CMGatewayClass,CMGateway.CMGatewayModule

Module=AgentManager,AgentManagerClass
Module=DataStore,DataStoreClass
Module=EventManager,EventManagerClass
Module=LicenseManager,LicenseManagerClass
Module=WorkManager,WorkManagerClass
Module=StandardizedInterface,StandardizedClass
Module=CMGateway,CMGatewayClass

### ADAPTER SPECIFIC ###

### SOAP Adapter
ModuleClass=SoapAdapter4DotNet_ProgID,SoapAdapter4DotNet.SoopAdapterModule
Module=SoapAdapter,SoapAdapter4DotNet_ProgID

### Remoting Endpoints
#ModuleClass=RemotingEndpointClass,AMCDotNetAdapterRemotingLibrary.RemotingModule
#Module=RemotingEndpoint,RemotingEndpointClass

### CHANNEL SPECIFIC ###

### NULL ConnectorDriver
#ModuleClass=CTINullClass,CTI_NULL.AMC_CTII_NULL
#Module=CTIModule,CTINullClass
```



```

### Avaya AIC
ModuleClass=PipePhoneConnector,AMCPipeConnector.AMCPipePhoneChannel
Module=CTIModule,PipePhoneConnector

...

###
# License Manager
#
###
[LicenseManager]
# TraceEnabled=1
# TraceLevel=2
# TraceMaxSize=1024
AA-DOTNET=
MCIS=
CTI_AIC=

...

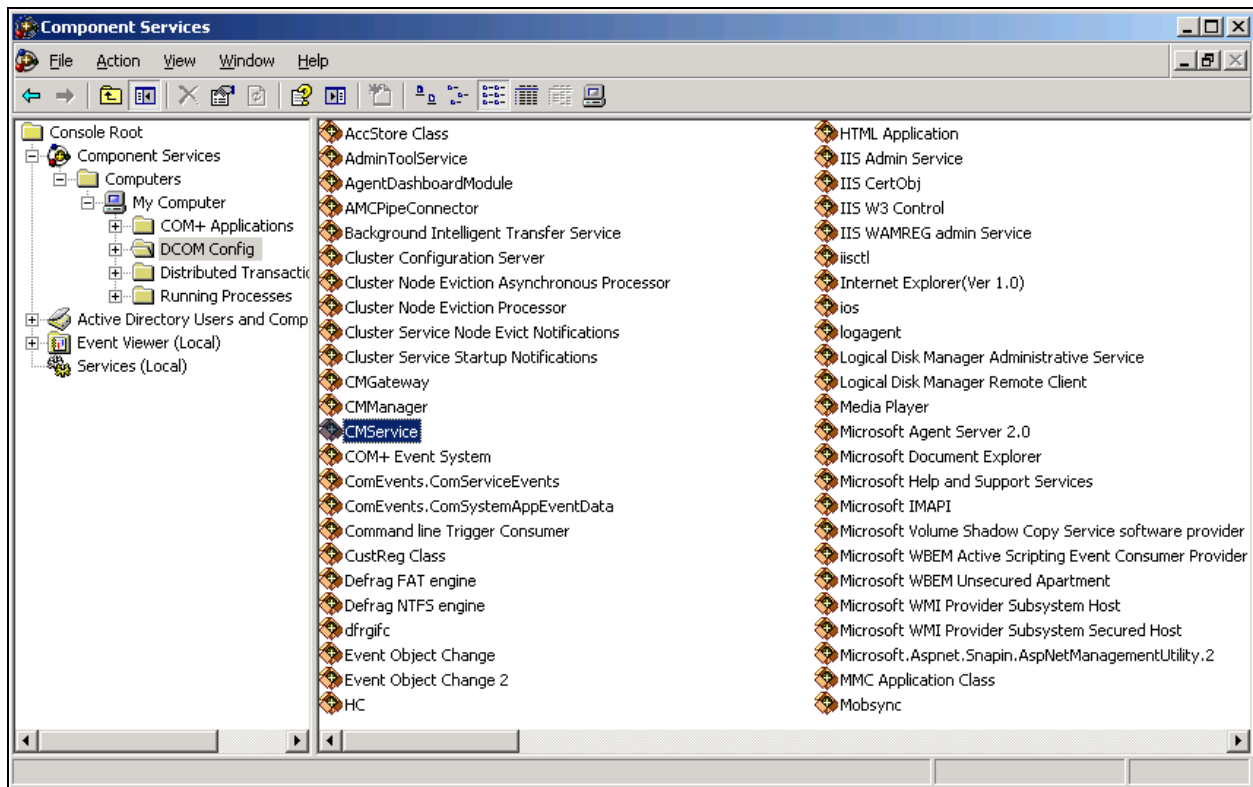
////////////////////////////////////
//
//Avaya Interaction Center(AIC)
//
////////////////////////////////////

[CTIModule]
# TraceEnabled=1
TraceLevel=5
TraceMaxSize=50240
DataStore=CTIModule
Channel=CTI1
PipeHost=10.1.10.86
PipeName=AMCPIPE
StatusTimeout=5
DataStore=CTIModule
PipePoolSize=20
MaxTransactionSize=1024000
ConvertCADKeysToUpper=False
TraceMaxSize=61440
RemoteUser=Administrator
RemotePassword=*****

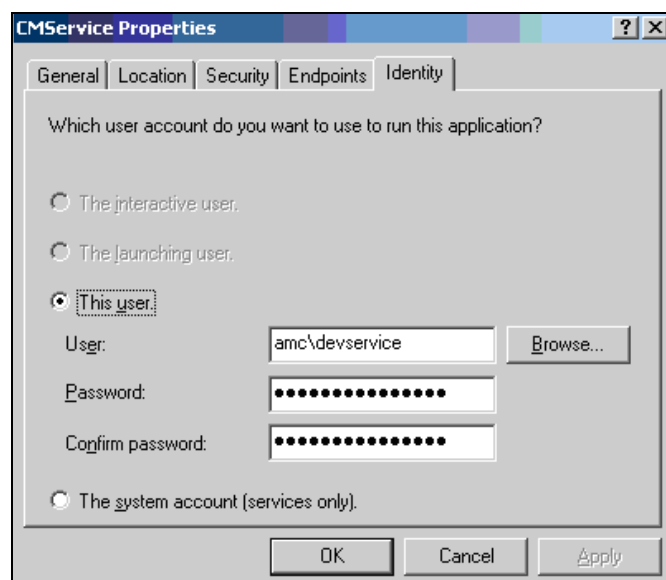
...

```

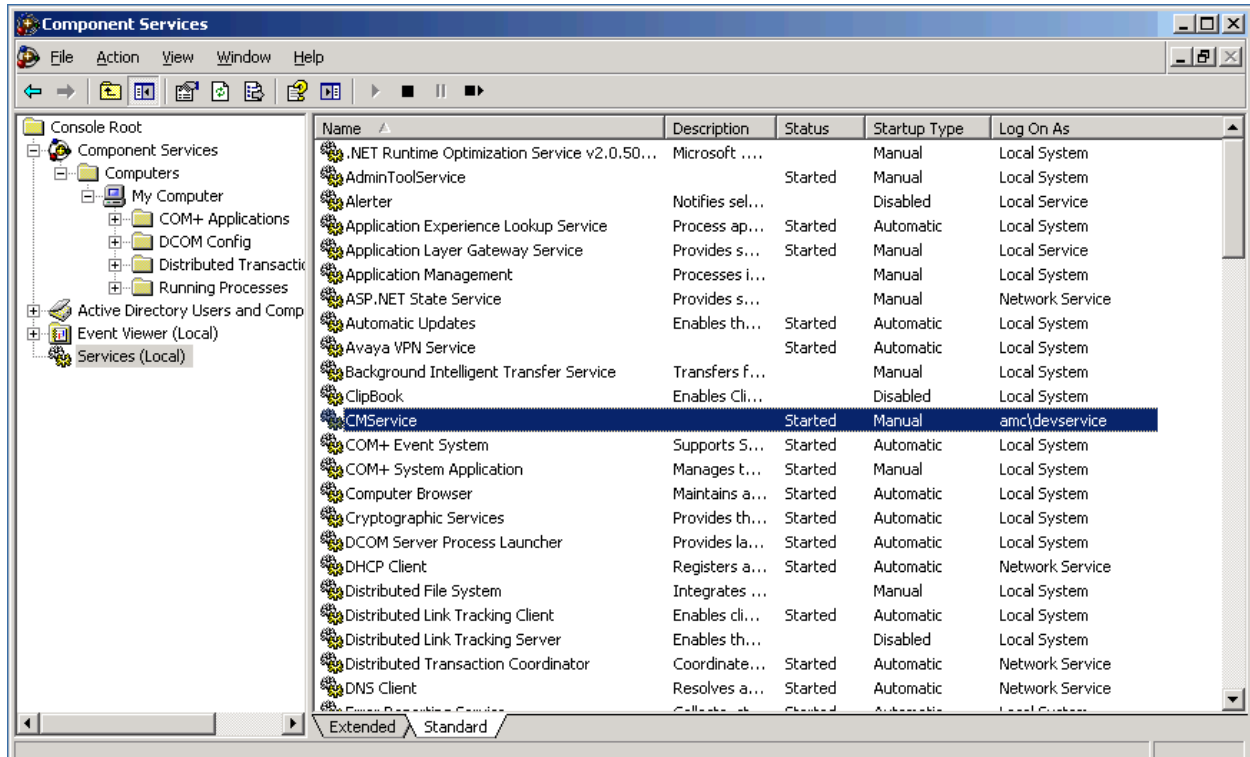
- Administer a user domain account in the Active Directory for DCOM communication between agents and CMService. In this example, the user is amc\devservice.
- Navigate to the **Component Services** in the Windows Server 2012 to access the window shown below. Double-click on CMService to open the properties window.



- In the **CMService Properties** window, navigate to the Identity tab and specify the `amc\devservice` user along with the password.



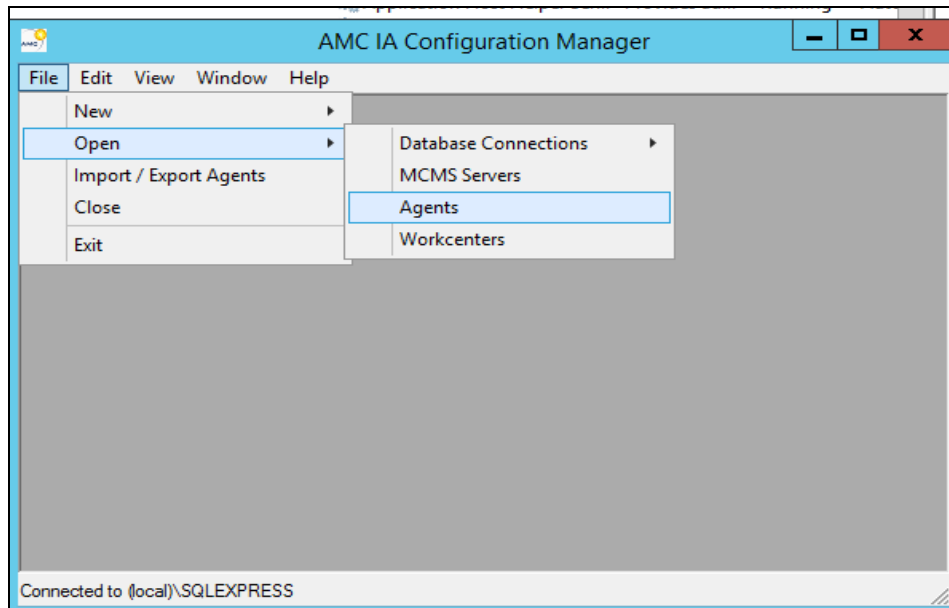
- Start the **CMService** from the Component Services window.



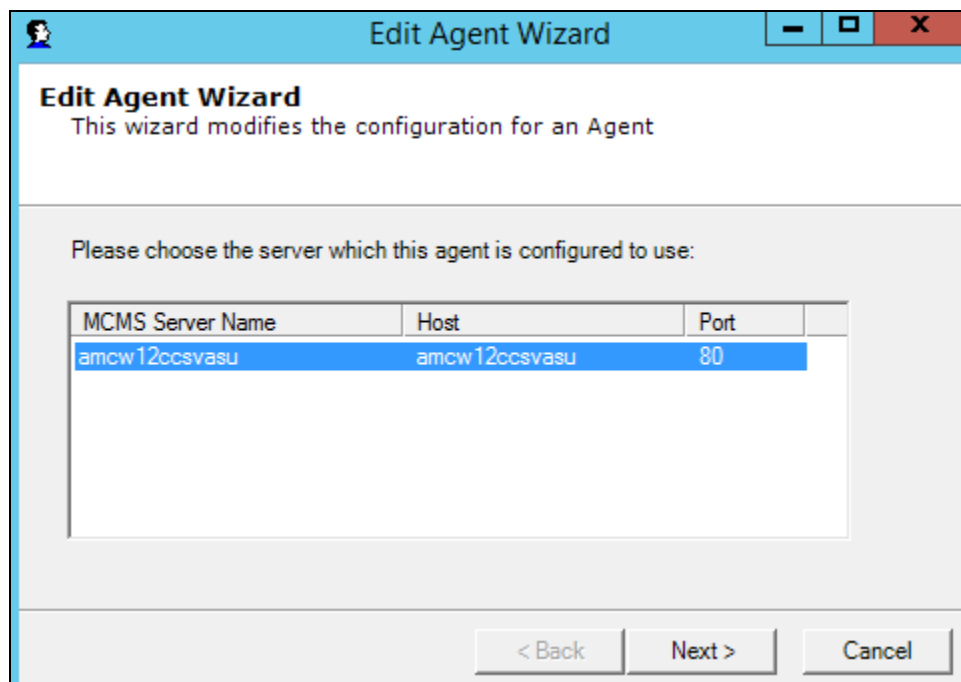
- Restart IIS by running the **iisreset** command in a command prompt window for SAPCRM7 EHP3.

7. Configure SAPCRM7 EHP3

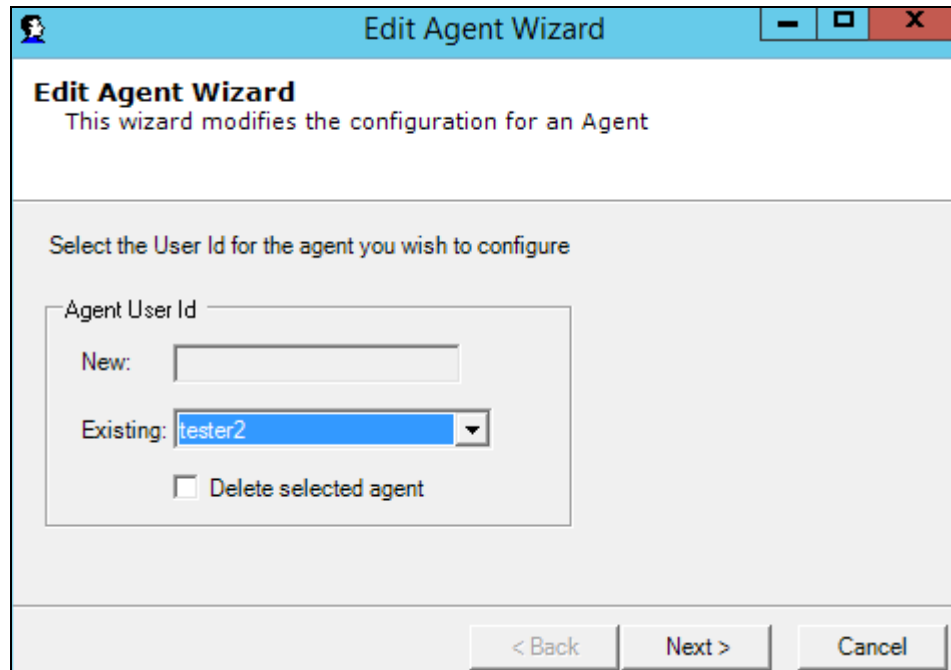
As there are 6 CRM adapters tested, this section will describe only the procedure for adding agents to SAPCRM7 EHP3. From the CCS server, start the **Agent Configuration Manager** to set up the agents. Navigate to **File → Open → Agents** as shown below.



From the **Edit Agent Wizard** window, select CCS server below and click **Next**.

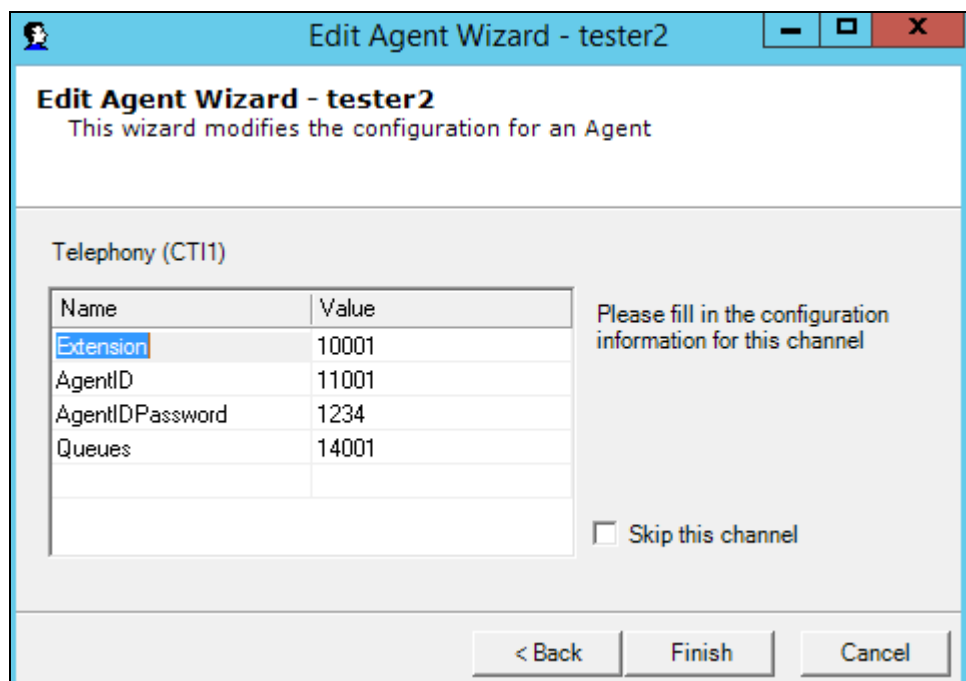


In the next window, specify the **Agent User Id** (e.g., **tester2**) and click **Next**.



The 'Edit Agent Wizard' window has a title bar with a user icon, the text 'Edit Agent Wizard', and standard window controls. The main area contains the title 'Edit Agent Wizard' and the subtitle 'This wizard modifies the configuration for an Agent'. Below this is the instruction 'Select the User Id for the agent you wish to configure'. A group box labeled 'Agent User Id' contains a 'New:' text box, an 'Existing:' dropdown menu with 'tester2' selected, and a checkbox labeled 'Delete selected agent'. At the bottom are three buttons: '< Back', 'Next >', and 'Cancel'.

In the last window, the **Extension**, **AgentID**, and **AgentIDPassword** configured in **Sections 4.3** and **4.4** are specified. Click **Finish**.



The 'Edit Agent Wizard - tester2' window has a title bar with a user icon, the text 'Edit Agent Wizard - tester2', and standard window controls. The main area contains the title 'Edit Agent Wizard - tester2' and the subtitle 'This wizard modifies the configuration for an Agent'. Below this is the section title 'Telephony (CT11)'. A table with two columns, 'Name' and 'Value', contains the following data:

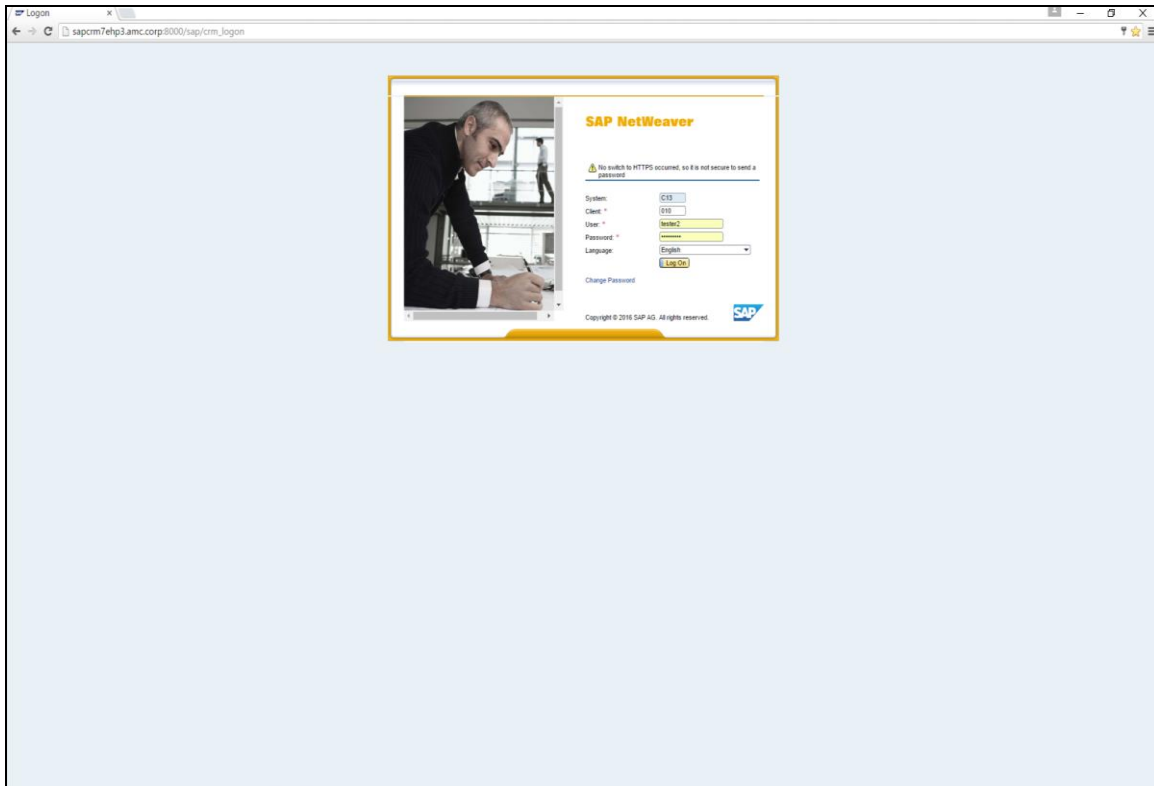
Name	Value
Extension	10001
AgentID	11001
AgentIDPassword	1234
Queues	14001

To the right of the table is the text 'Please fill in the configuration information for this channel'. Below the table is a checkbox labeled 'Skip this channel'. At the bottom are three buttons: '< Back', 'Finish', and 'Cancel'.

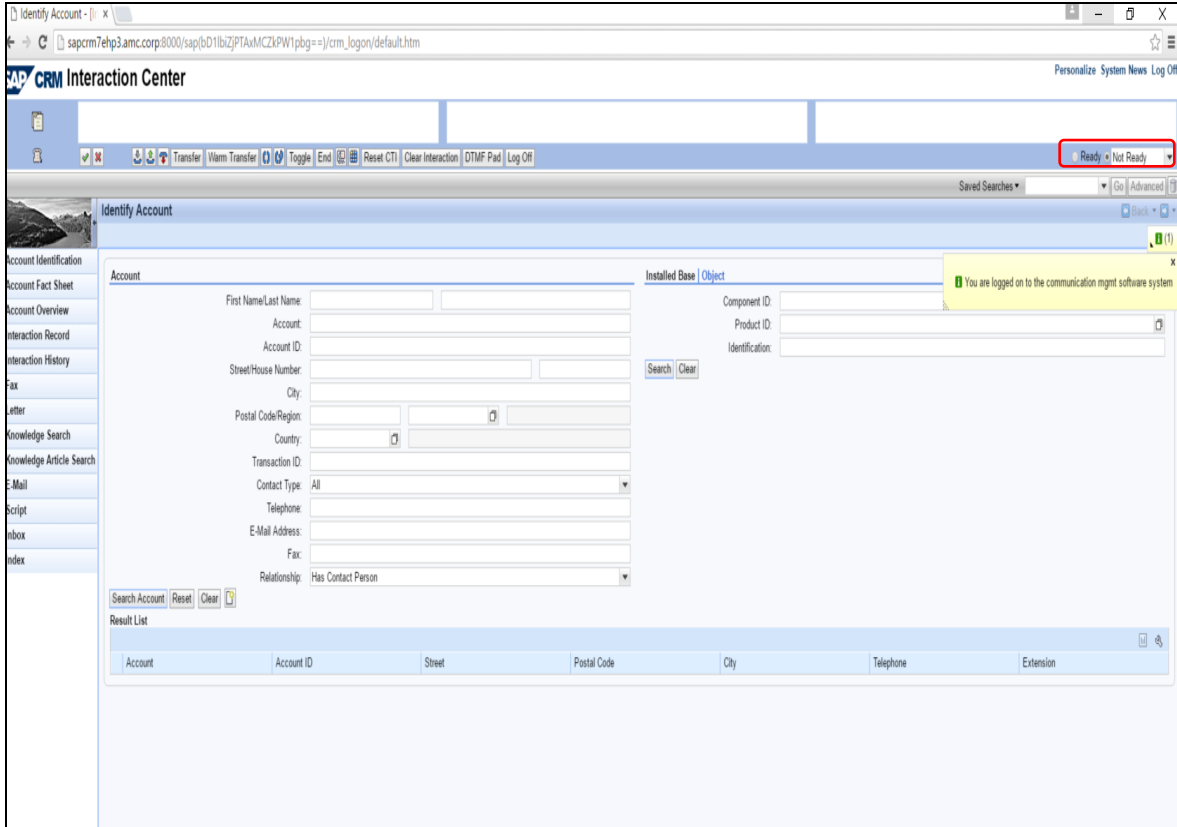
8. Verification Steps

This section provides the verification steps that may be performed to verify that the CCS can retrieve call data from Avaya IC 7.3.

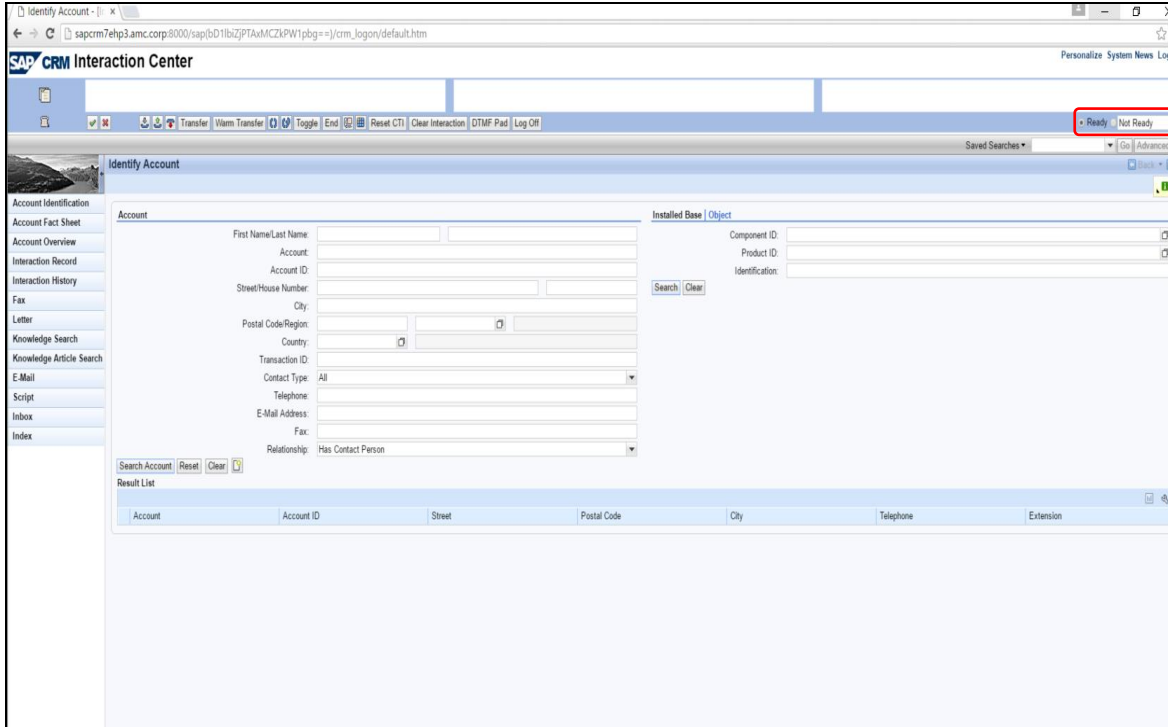
1. Log On to the SAP NetWeaver with the appropriate **User** name and **Password**.



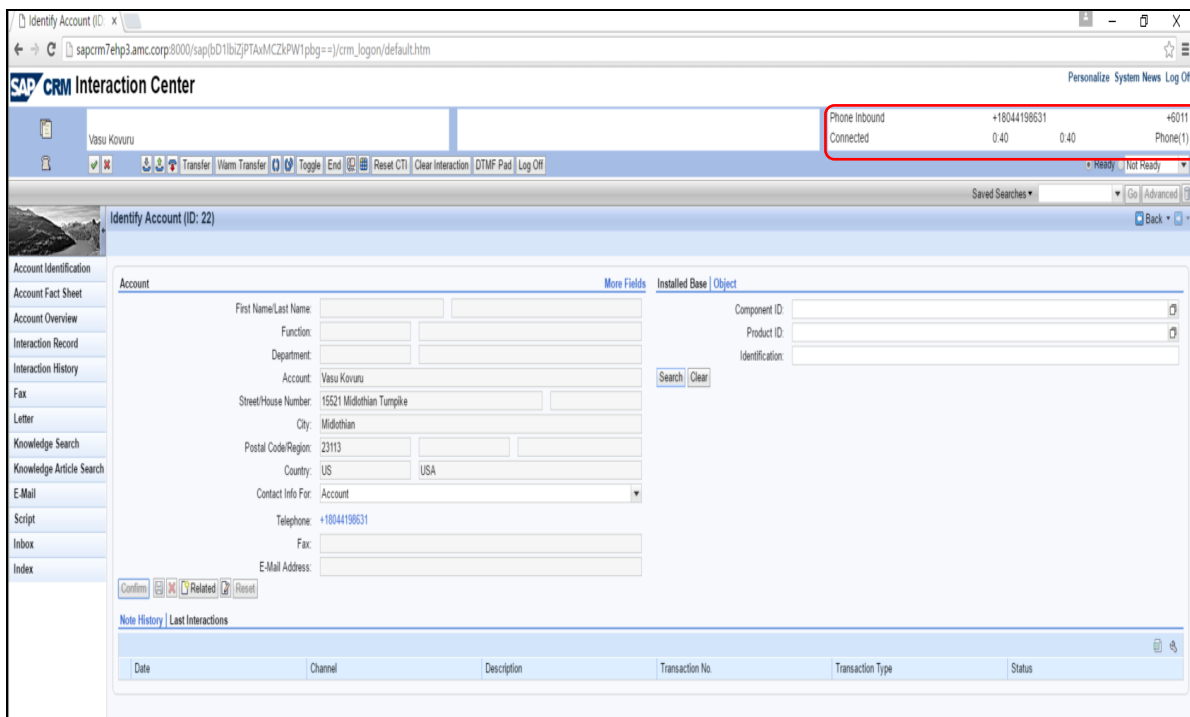
2. Verify that the agent is in **Not Ready** state in the top right pane.



3. Login as an agent and verify that the agent state is **Ready** on the top right pane.



4. Make an incoming call to the VDN and verify that the agent is connected with the contact information



9. Conclusion

These Application Notes describe the configuration steps required to integrate the AMC Contact Canvas Server with Avaya Interaction Center 7.3. All test cases passed with observations in **Section 2.2**.

10. Additional References

The following Avaya documentation can be obtained on the <https://support.avaya.com>.

- [1] *Avaya Interaction Center Release Installation Planning and Prerequisites*, Release 7.3.X, Nov 2015
- [2] *Avaya Interaction Center Release Installation and Configuration on Microsoft Windows/Oracle Solaris/IBM AIX*, Release 7.3.X, Nov 2015

The following AMC documentation are provided by AMC Technology.

- [3] *AMC Contact Canvas Server, Implementation Guide Contact Canvas 6.5*
- [4] *AMC Voice for Avaya Interaction Center(AIC) VESP, Implementation Guide Contact Canvas 6.5*
- [5] *AMC Application Adapter for mySAP™ Interaction Center WebClient, Implementation Guide Version 6.5*

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