



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

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# **Application Notes for R Systems Indus Collections with Avaya Proactive Contact using Avaya PG230 Digital Switch - Issue 1.0**

### **Abstract**

These Application Notes describe the configuration steps required for R Systems Indus Collections to successfully interoperate with Avaya Proactive Contact using Avaya PG230 Digital Switch. Indus Collections is one of the three modules in Lending Solutions from Indus (LSI). Indus Collections helps manage recovery from delinquent accounts. This feature-rich multi-user software product provides tracking and recovering of overdue payments. Indus Collections integrates to Proactive Contact using the Proactive Contact Agent API through its web-based client.

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 a compliance tested configuration comprised of Avaya Proactive Contact using Avaya PG230 Digital Switch (also known as hard dialer) and R Systems Indus Collections. Indus Collections helps companies manage recovery from delinquent accounts. This feature-rich multi-user software product provides speed and flexibility in tracking and recovering of overdue payments. Indus Collection used the Avaya Proactive Contact Agent API to provide integration between the Indus Collections clients running on the agent desktops with Avaya Proactive Contact.

## 1.1. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing. The feature testing focused on verifying Indus Collections' interoperability with Avaya Proactive Contact to handle Outbound and Managed campaigns.

The following features on the Indus Collections were tested:

- Login / Logout
- Available / Not Available
- Join Job / Leave Job
- Finish Call
- Hang Up Call
- Call Back
- Agent Owned Recall
- Hold / Unhold
- Auto Release Line with status message
- Manual Call
- Preview Call
- Supervised Transfer (voice only)
- Supervised Conference (voice only)
- Job End

The serviceability testing focused on verifying the ability of Indus Collections to recover from adverse conditions, such as disconnecting/reconnecting the Ethernet cable to the Indus Collections agent desktop and restarting the agent desktop and Avaya Proactive Contact server.

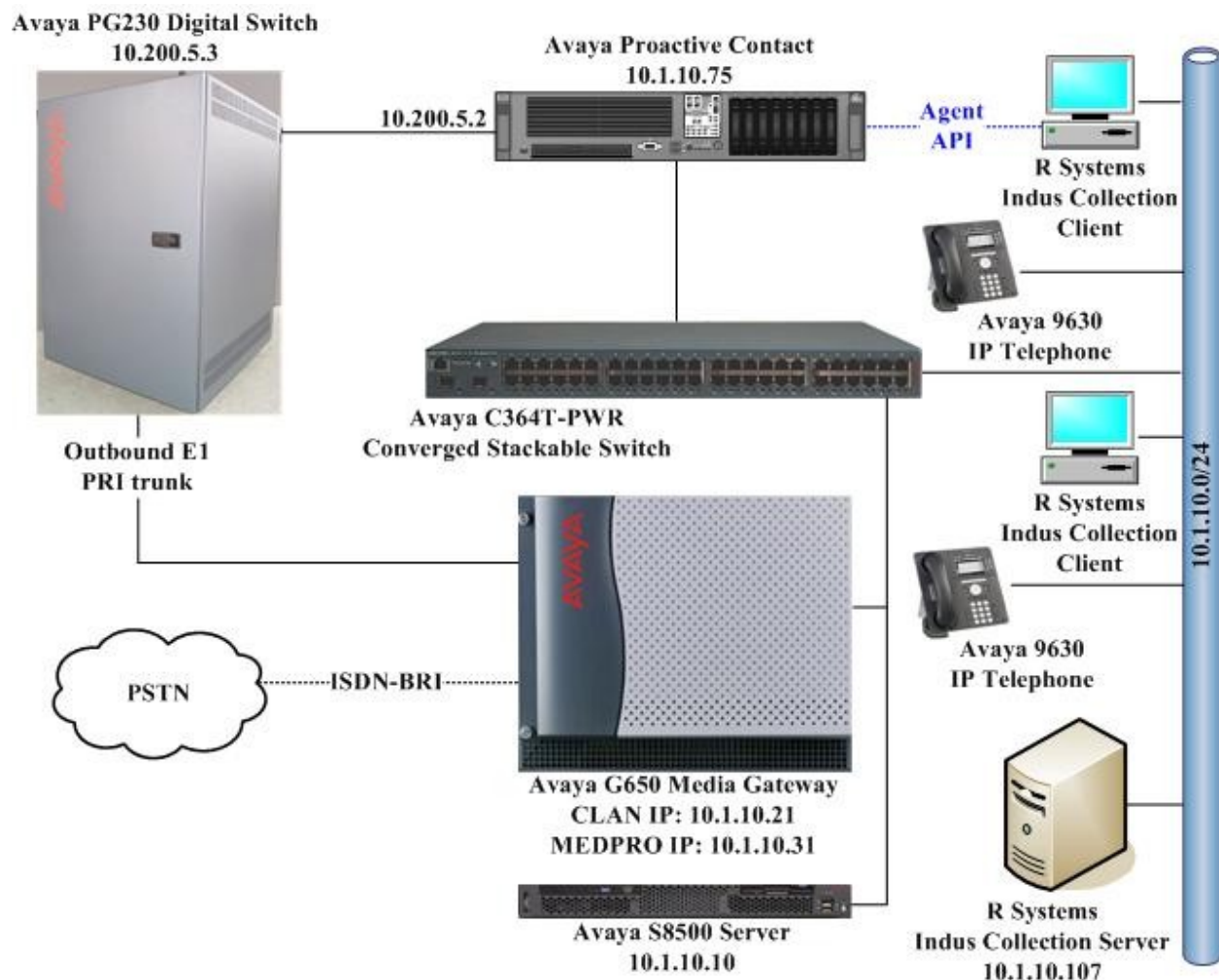
## 1.2. Support

Technical support for the Indus Collections is available as follows:

- Telephone Help Desk: +91-120-4303500
- Email: [india@rsystems.com](mailto:india@rsystems.com)

## 2. Reference Configuration

**Figure 1** illustrates the test configuration used to verify the R Systems Indus Collections solution. The configuration comprised of an Avaya S8500 Server running Avaya Aura™ Communication Manager and an Avaya G650 Media Gateway with connections to the following: Avaya 9630 IP Telephones, an ISDN-PRI trunk to the PG230 Digital Switch and an ISDN-BRI trunk to the PSTN. R Systems Indus Collections is installed on a server running Microsoft Windows Server 2003. Indus Collections integration library (AvayaDialer.ocx) is installed on the agent desktops running Microsoft Windows XP Professional, together with the Avaya Proactive Contact Agent SDK which provides the moagent32.dll library. The Avaya C364T-PWR Converged Stackable Switch provides Ethernet connectivity to the servers and IP telephones.



**Figure 1: Test Configuration**

### 3. Equipment and Software Validated

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

Equipment	Software
Avaya Proactive Contact Server on HP Proliant DL385G2 using PG230 Digital Switch	4.1.1 (Build 105)
Avaya Proactive Contact Agent API	4.101.0001 (Moagent32.dll)
Avaya S8500 Server	Avaya Aura™ Communication Manager 5.2 with Service Pack 02.0.947.3-17579
Avaya G650 Media Gateway <ul style="list-style-type: none"><li>• TN2312BP IP Server Interface</li><li>• TN799DP C-LAN Interface</li><li>• TN2602AP IP Media Processor</li><li>• TN2464CP DS1 Interface</li></ul>	HW07, FW046 HW01, FW032 HW02, FW049 HW02, FW024
Avaya C363T-PWR Converged Stackable Switch	4.5.18
Avaya 9630 IP Telephones	3.1 (H.323)
R Systems Indus Collections Server	4.0
Agent Desktops <ul style="list-style-type: none"><li>• Web Browser</li><li>• R Systems Indus Collections Client Library (AvayaDialer.ocx)</li></ul>	Microsoft Internet Explorer 8.0 1.0

### 4. Configure Avaya Proactive Contact

These Application Notes assume that the interface between Avaya PG230 Digital Switch, Avaya Proactive Contact has been configured and is operational. Refer to Avaya Documentation [2] and [3] for configuration instructions.

The following campaign types were configured on Avaya Proactive Contact:

- Outbound Calls
- Managed Calls

The following features were configured on Avaya Proactive Contact. Refer to [2], [3] and [4] for reference.

- Completion Codes
- Recall (Callback)
- Agent Owned Recall
- Auto wrap
- Voice Call Transfer

The screen shots below for Avaya PG230 Digital Switch Ports and Avaya Proactive Contact Configuration Files are displayed as a reference for configuring ports on Communication Manager.

## 4.1. Avaya PG230 Digital Switch Ports

Start telnet session to Avaya PG230 Digital Switch and login to the system using an appropriate username and password. In the **Administration Main Menu** screen, enter selection **A** for **Data Base Administration Menu** and press Enter. In the **Data Base Administration Menu** screen, enter selection **B** for **Resource Group Summary** (not shown) and press Enter. The **Resource Group Summary** is displayed as shown below.

R E S O U R C E   G R O U P   S U M M A R Y														
NO	NAME	HUNT TYPE	PORT CNT	THRESHOLDS			NO	NAME	HUNT TYPE	PORT CNT	THRESHOLDS			DSP
1	bc	CYCLIC	128	0	0	—	17			0	0	0	—	
2	ecpa	CYCLIC	192	0	0	—	18			0	0	0	—	
3	dcc/ecc	CYCLIC	128	0	0	—	19	txfe1	CYCLIC	3	0	0	—	
4			0	0	0	—	20			0	0	0	—	
5			0	0	0	—	21			0	0	0	—	
6			0	0	0	—	22			0	0	0	—	
7			0	0	0	—	23			0	0	0	—	
8			0	0	0	—	24			0	0	0	—	
9			0	0	0	—	25			0	0	0	—	
10	outbound	CYCLIC	0	0	0	—	26			0	0	0	—	
11	outqe1	CYCLIC	10	0	0	—	27			0	0	0	—	
12	inbqe1	CYCLIC	5	0	0	—	28			0	0	0	—	
13			0	0	0	—	29			0	0	0	—	
14			0	0	0	—	30			0	0	0	—	
15	agents	CYCLIC	0	0	0	—	31			0	0	0	—	
16	agtqe1	CYCLIC	5	0	0	—	32			0	0	0	—	

On the **Resource Group Summary** screen use ctrl+n to get to the **outqe1** row, enter any character in the **DSP** column for the **outqe1**, for example enter **d** and then press Enter. The screen below displays configured outbound ports (2-11) on the PG230 Digital Switch. These ports correspond to the ports of the inbound trunk group configured on Communication Manager in **Section 5.1**. Repeat this step to obtain the ports configured for agent headsets (**agtqe1**) and transfer (**txfe1**) resource groups, which are (12-16) and (18-20) respectively.

R E S O U R C E   G R O U P   C O N F I G U R A T I O N														
RESOURCE GROUP - #11					NAME - outqe1									
POS	PORT NAME	LOCATION				POS	PORT NAME	LOCATION						
---	-----	R	L	S	P	---	-----	R	L	S	P	---		
1		1	1	18-1	2			—	—	—	—			
2		1	1	18-1	3			—	—	—	—			
3		1	1	18-1	4			—	—	—	—			
4		1	1	18-1	5			—	—	—	—			
5		1	1	18-1	6			—	—	—	—			
6		1	1	18-1	7			—	—	—	—			
7		1	1	18-1	8			—	—	—	—			
8		1	1	18-1	9			—	—	—	—			
9		1	1	18-1	10			—	—	—	—			
10		1	1	18-1	11			—	—	—	—			
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
ADD/DELETE/CARD   (A/D/C)   POS   R L S P														

## 4.2. Avaya Proactive Contact Configuration Files

The **dgswitch.cfg** file is automatically configured by running **dg\_import** command. The format used is based on the location of the ports in the PG230 Digital Switch; therefore Proactive Contact is configured with the same number of **Outbound Ports** as the number of outbound lines on the PG230 Digital Switch. The outbound ports configured on Proactive Contact correspond to the ports of the outbound trunk group configured on Communication Manager in **Section 5.1**. The **dgswitch.cfg** file is located in the **/opt/avaya/pds/config** directory.

```
# Headset Ports
H:1:259:1::#H:16:1:1-1-18-12
H:2:260:1::#H:16:1:1-1-18-13
H:3:261:1::#H:16:1:1-1-18-14
H:4:262:1::#H:16:1:1-1-18-15
H:5:263:1::#H:16:1:1-1-18-16

# Outbound Ports
N:1:249:1::#O:11:1:1-1-18-2
N:2:250:1::#O:11:1:1-1-18-3
N:3:251:1::#O:11:1:1-1-18-4
N:4:252:1::#O:11:1:1-1-18-5
N:5:253:1::#O:11:1:1-1-18-6
N:6:254:1::#O:11:1:1-1-18-7
N:7:255:1::#O:11:1:1-1-18-8
N:8:256:1::#O:11:1:1-1-18-9
N:9:257:1::#O:11:1:1-1-18-10
N:10:258:1::#O:11:1:1-1-18-11

# Inbound Ports

# Transfer Trunks
T:1:265:1::#T:19:1:1-1-18-18
T:2:266:1::#T:19:1:1-1-18-19
T:3:267:1::#T:19:1:1-1-18-20
```

The **master.cfg** file located in the **/opt/avaya/pds/etc** directory sets the basic parameters for the operation of Proactive Contact. The following parameters were configured.

- **AGENTOWNRECALL** – set to **YES** to allow agents to schedule a recall to be delivered back to them.
- **LINEASSIGN** – set to the port numbers of the outbound trunk lines as configured in **dgswitch.cfg** and on PG230 Digital Switch.

```
AGENTOWNRECALL: YES
LINEASSIGN: REG, O=1-10; INB, I=11-15; IVR, I=21
```

### 4.3. Obtain Customer Record Fields

A sample of customer records were retrieved from Indus Collections and uploaded to Proactive Contact as the calling lists. The following table shows the fields that are used in this compliance testing. Note that the mandatory fields that are required for integration is highlighted in bold (i.e. the agreement number and the telephone numbers). The rest of the fields are optional as they are retrieved directly from Indus Collections when the call is delivered to the agent.

	Field Name	Description	Column Width
1	<b>AGREEMENTNO</b>	<b>Agreement Number</b>	<b>20</b>
2	ADDRESS1	Address 1	50
3	<b>PHONE1</b>	<b>Phone 1</b>	<b>20</b>
4	<b>PHONE2</b>	<b>Phone 2</b>	<b>20</b>
5	<b>PHONE3</b>	<b>Phone 3</b>	<b>20</b>
6	TELEX1	Telex 1	10
7	TELEX2	Telex 2	10
8	PORTFOLIO	Portfolio	1
9	PRODUCT	Product	5
10	LOANAMT	Loan Amount	14
11	OVERDUEAMT	Overdue Amount	14
12	OSAMT	Outstanding Amount	14
13	WFCODE	Workflow	20
14	WFSTATECODE	Workflow State	20
15	CUSTOMERNO	Customer Number	20
16	<b>MOBILENO</b>	<b>Mobile Number</b>	<b>20</b>
17	NAME	Customer Name	120
18	BUCKETCODE	Bucket	5
19	IODDAYS	Overdue Days	3

The creation of the Calling Lists, Phone Strategies, Record Selections and Jobs using the Proactive Contact Supervisor application are beyond the scope of these application notes. For details, refer to [4].

## 5. Configure Communication Manager

The basic configuration of Communication Manager is beyond the scope of these Application Notes. This section provides the procedures for verifying and configuring Communication Manager with PG230 Digital Switch. The following was configured:

- E1 trunk on Communication Manager to PG230 Digital Switch

Configuration in the following sections is only for the fields where a value needs to be entered or modified. Default values are used for all other fields. These steps are performed from the Communication Manager System Access Terminal (SAT) interface and all changes are saved by entering the **save translation** command. Refer to [1] for additional details.

### 5.1. E1 Trunk on Communication Manager to PG230 Digital Switch

An ISDN-PRI E1 trunk was configured between Communication Manager and PG230 Digital Switch for Agent Headsets (Dial Back), Outbound and Transfer calls. The physical link was between the PG230 Digital Switch and the DS1 circuit pack on G650 Media Gateway. Enter the **add ds1 n** command, where **n** is the location of the DS1 circuit pack. Configure the following:

- **Name** – set to any descriptive string value, in this case, it was **PG230**.
- **Bit Rate** – set to **2.048**.
- **Line Coding** – set to **hdb3**.
- **Signaling Mode** – set to **isdn-pri**.
- **Connect** – set to **pbx**.
- **Interface** – set to **network**.
- **Country Protocol** – set to **etsi**.
- **Interface Companding** – set to **alaw**.

```
add ds1 1a08                                     Page 1 of 1
                                         DS1 CIRCUIT PACK

      Location: 01A08                               Name: PG230
      Bit Rate: 2.048                               Line Coding: hdb3

      Signaling Mode: isdn-pri
      Connect: pbx                                   Interface: network
      TN-C7 Long Timers? n                           Country Protocol: etsi
      Interworking Message: PROGress
      Interface Companding: alaw                      CRC? n
      Idle Code: 01010100                            DCP/Analog Bearer Capability: 3.1kHz

                                         T303 Timer(sec): 4
                                         Disable Restarts? n

      Slip Detection? n                               Near-end CSU Type: other

      Echo Cancellation? n
```



Configure a trunk group to use the DS1 circuit pack. Enter the **add trunk-group n** command, where **n** is an available trunk group number. Configure the following on **Page 1**.

- **Group Type** – set to **isdn**.
- **Group Name** – set to any descriptive string value, in this case, it was **Avaya CM - PG230**.
- **TAC** – enter a Trunk Access Code that is valid in the provisioned dial plan.
- **Carrier Medium** – set to **PRI/BRI**.
- **Dial Access** – set to **y**.
- **Service Type** – set to **tie**.

add trunk-group 7		Page 1 of 21
TRUNK GROUP		
Group Number: 7	<b>Group Type: isdn</b>	CDR Reports: y
<b>Group Name: Avaya CM - PG230</b>	COR: 1	TN: 1 <b>TAC: #07</b>
Direction: two-way	Outgoing Display? n	<b>Carrier Medium: PRI/BRI</b>
<b>Dial Access? y</b>	Busy Threshold: 99	Night Service:
Queue Length: 0	Auth Code? n	TestCall ITC: rest
<b>Service Type: tie</b>	Far End Test Line No:	
TestCall BCC: 4		

On **Page 2** of the trunk group form, specify the following:

- **Disconnect Supervision**
  - **In** - set to **y**.
  - **Out** - set to **y**.

add trunk-group 7		Page 2 of 21
Group Type: isdn		
TRUNK PARAMETERS		
Codeset to Send Display: 6	Codeset to Send National IEs: 6	
Max Message Size to Send: 260	Charge Advice: none	
Supplementary Service Protocol: a	Digit Handling (in/out): enbloc/enbloc	
Trunk Hunt: cyclical		
Digital Loss Group: 13		
Incoming Calling Number - Delete:	Insert:	Format:
Bit Rate: 1200	Synchronization: async	Duplex: full
<b>Disconnect Supervision - In? y Out? y</b>		
Answer Supervision Timeout: 10		
Administer Timers? n	CONNECT Reliable When Call Leaves ISDN? n	

Configure a signaling group for the previously configured DS1 board 01A08. Enter the **add signaling-group n** command, where **n** is an unused signaling group number. Configure the following.

- **Group Type** – set to **isdn-pri**.
- **Primary D-Channel** – enter the DS1 board number followed by 16.
- **Trunk Group for NCA TSC** – enter the trunk group number that was configured above; in this case that was trunk group 7.
- **Trunk Group for Channel Selection** – enter the trunk group number that was configured above; in this case that was trunk group 7.

```
add signaling-group 7                                     Page 1 of 1

SIGNALING GROUP

Group Number: 1          Group Type: isdn-pri
Associated Signaling? y   Max number of NCA TSC: 0
Primary D-Channel: 01A0816 Max number of CA TSC: 0
Trunk Group for NCA TSC: 7
Trunk Group for Channel Selection: 7
TSC Supplementary Service Protocol: a
```

Enter the **change trunk-group n** command, where **n** is the trunk group number previously configured for inbound calls. On **Page 5**, configure **GROUP MEMBER ASSIGNMENTS** as follows:

- **Port** – enter the DS1 board number followed by the trunk member number. The ports configured on Communication Manager must be mapped to the ports configured on the PG230 Digital Switch.
- **Name** - enter a descriptive name to identify the trunk member.
- **Sig Grp** – enter the number of the signaling group configured for the DS1 board 01A08, in this case it is Signaling Group 7.

```
change trunk-group 7                                     Page 5 of 21

TRUNK GROUP
Administered Members (min/max): 1/19
Total Administered Members: 18

GROUP MEMBER ASSIGNMENTS

Port      Code Sfx Name      Night      Sig Grp
1: 01A0801 TN2464 C outbound      7
2: 01A0802 TN2464 C outbound      7
3: 01A0803 TN2464 C outbound      7
4: 01A0804 TN2464 C outbound      7
5: 01A0805 TN2464 C outbound      7
6: 01A0806 TN2464 C outbound      7
7: 01A0807 TN2464 C outbound      7
8: 01A0808 TN2464 C outbound      7
9: 01A0809 TN2464 C outbound      7
10: 01A0810 TN2464 C outbound      7
11: 01A0811 TN2464 C headset      7
12: 01A0812 TN2464 C headset      7
13: 01A0813 TN2464 C headset      7
14: 01A0814 TN2464 C headset      7
15: 01A0815 TN2464 C headset      7
```

**Note:** There is different port numbering between PG230 Digital Switch and Communication Manager; therefore ports 2-11 on PG230 Digital Switch correspond to ports 1-10 on Communication Manager.

Repeat the above configuration steps to configure the trunk members for Agent Headsets (Dial Back) and Transfer calls.

change trunk-group 7						Page	6 of 21
						TRUNK GROUP	
						Administered Members (min/max): 1/19	
GROUP MEMBER ASSIGNMENTS						Total Administered Members: 18	
	Port	Code	Sfx	Name	Night	Sig	Grp
16:							
17:	01A0817	TN2464	C	transfer		7	
18:	01A0818	TN2464	C	transfer		7	
19:	01A0819	TN2464	C	transfer		7	

## 6. Configure R Systems Indus Collections Client

This section describes the steps to configure R Systems Indus Collections Client. Configuration in the following sections is only for the fields where a value needs to be entered or modified.

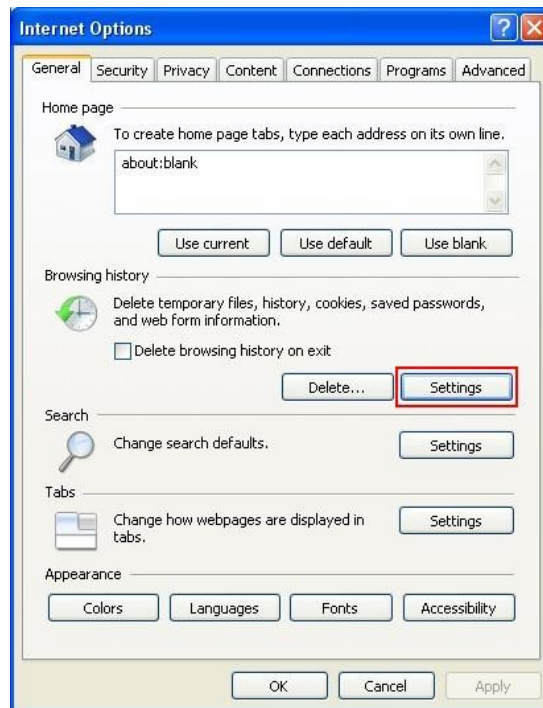
Default values are used for all other fields. The following configuration is described below:

- Configure Microsoft Internet Explorer
- Configure hosts file
- Configure moagent32.ini file

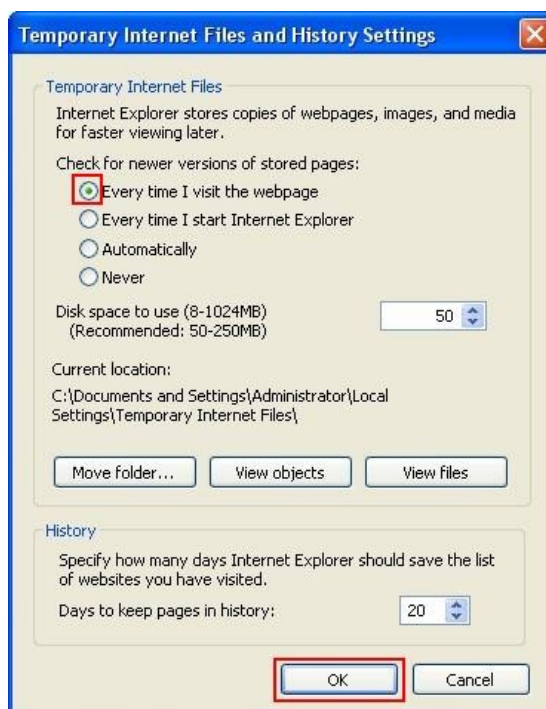
### 6.1. Configure Microsoft Internet Explorer

Indus Collections Client is a web-based client that uses Microsoft Internet Explorer to log in to the Indus Collections server. The integration to Proactive Contact uses an additional integration library file AvayaDialer.ocx which required additional configuration in Internet Explorer as described below.

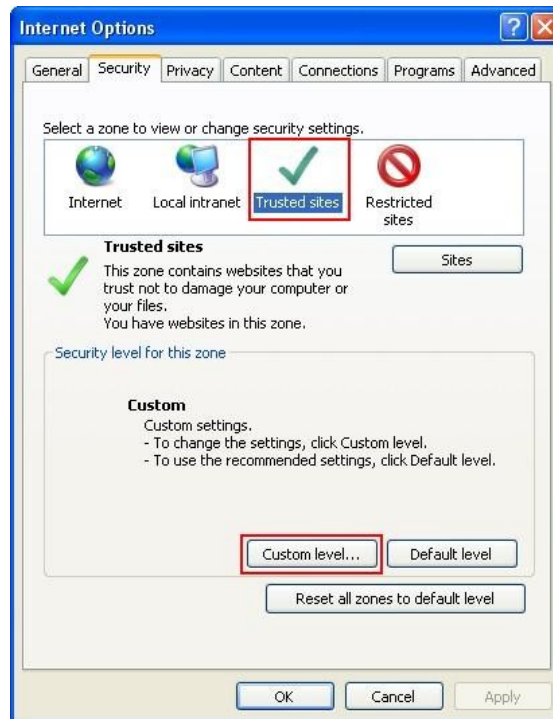
From Internet Explorer, select **Tools → Internet Options** (not shown). In the **General** tab, click **Settings** under the **Browsing history** section.



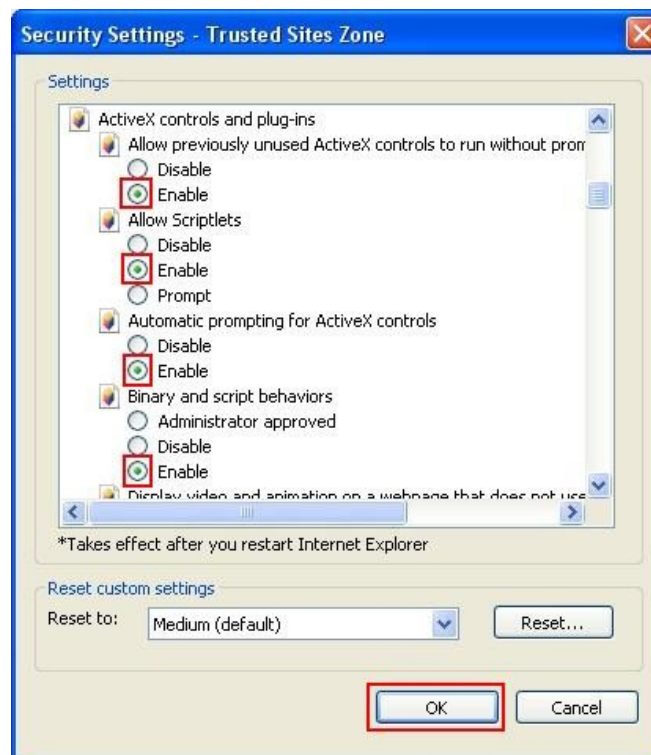
Select **Every time I visit the webpage** and click **OK**.



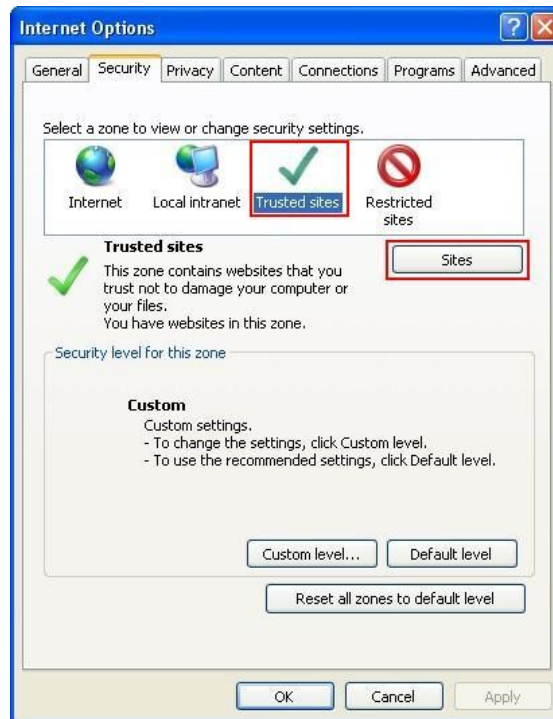
In the **Security** tab, select **Trusted sites** and click **Custom level**.



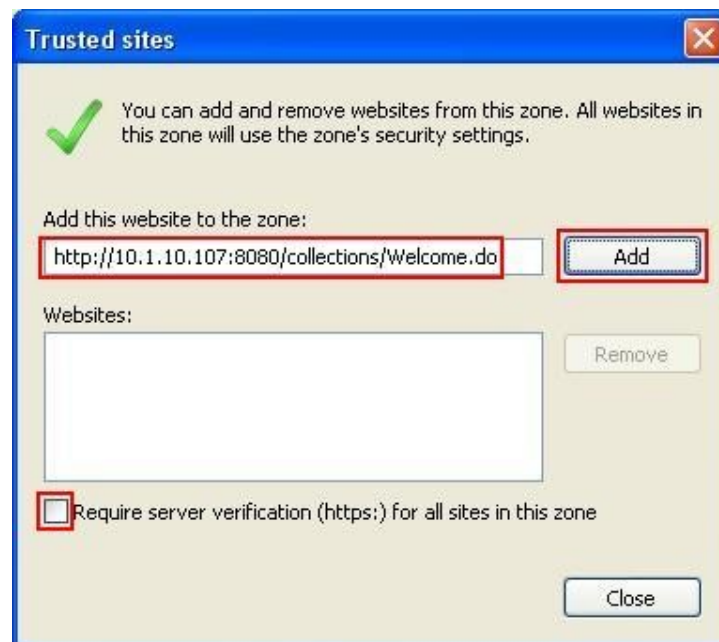
In the **ActiveX controls and plug-ins** section, set all options to **Enable** and click **OK**.



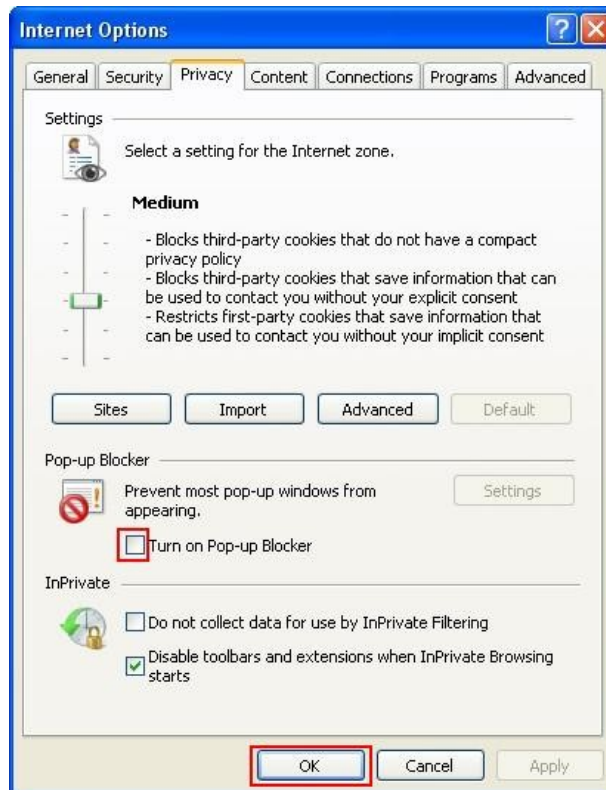
In the **Security** tab, select **Trusted sites** and click **Sites**.



Uncheck **Require server verification (https:)** for all sites in this zone. Enter the URL to access the Indus Collections server, in this case it is <http://10.1.10.107:8080/collections/Welcome.do> and click **Add**. This will specify the Indus Collections server as a trusted site.



In the **Privacy** tab, uncheck **Turn on Pop-up Blocker**. Click **OK** to complete.



## 6.2. Configure Hosts File

The Avaya Proactive Contact Agent API that is used by Indus Collections Client checks the hosts file to obtain the IP address of the Proactive Contact. Configure the **hosts** file located in **C:\WINDOWS\system32\drivers\etc** directory and specify the IP address and hostname for the Avaya Proactive Contact as shown below:

127.0.0.1	localhost
10.1.10.75	pcontact

### 6.3. Configure moagent32.ini File

The Indus Collections Client checks the **moagent32.ini** file to obtain the IP address or hostname of Avaya Proactive Contact. Edit the **moagent32.ini** file located in **C:\WINDOWS** directory and configure the **servername** parameter with IP address or hostname of the Proactive Contact as shown below:

```
[logon]
servername = pcontact
servicename = agent
portnumber  = 22700
headset =
```

## 7. General Test Approach and Test Results

The feature test cases were performed manually. Agents would log on using Microsoft Internet Explorer into Indus Collections and Proactive Contact. During log in, the specified headsets were reserved for the agents and the agents were joined into the specified jobs.

The verification of tests included checking of proper states on the Indus Collections Client and on the telephones that were used as the headsets.

The serviceability test cases were performed manually by disconnecting and reconnecting the LAN cables on the agent desktops, by restarting the agent desktops and Proactive Contact server.

All test cases passed successfully.

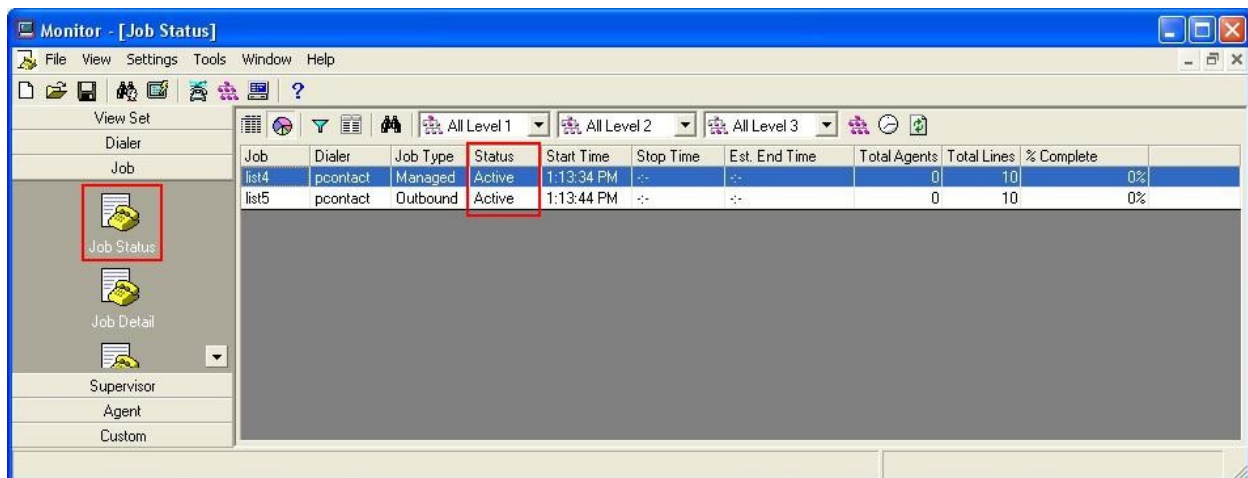
## 8. Verification Steps

This section provides the tests that can be performed to verify proper configuration of Proactive Contact and Indus Collections Client.

### 8.1. Verify Proactive Contact

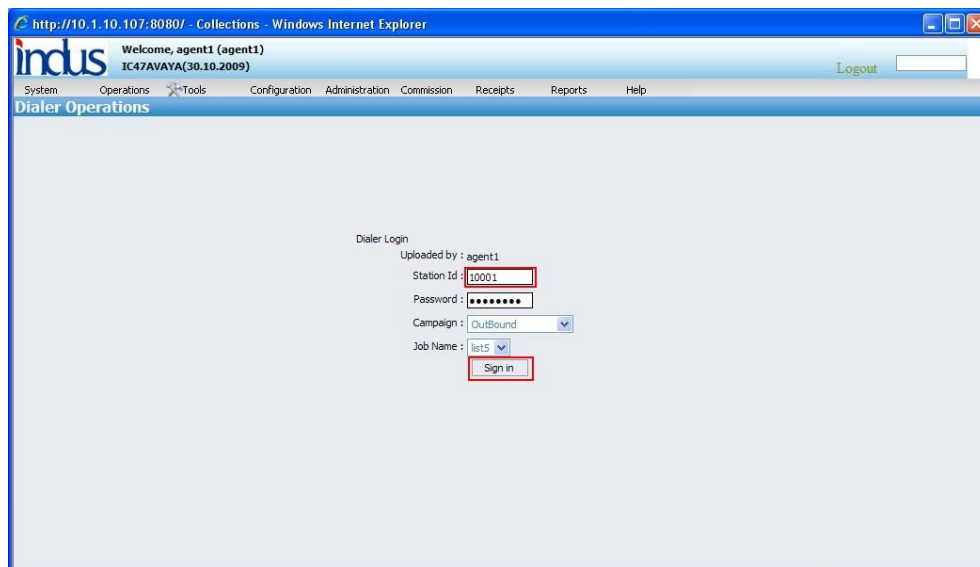
From a desktop installed with Proactive Contact Supervisor, click **Start → All Programs → Avaya → Proactive Contact 4.1 → Supervisor → Monitor** and log in using an account with administrative privileges. Select **Job Status** from the left navigation pane and verify that the required jobs are in the **Active** state as shown below.





## 8.2. Verify Indus Collections

From an agent desktop using Internet Explorer, browse to the Indus Collection server URL <http://10.1.10.107:8080/collections/Welcome.do> and log in using an agent's account. Select **Operations** → **Dialer Operations** (not shown) to display the **Dialer Login** screen as shown below. Enter an extension to use as agent headset for **Station Id**, select the desired **Campaign** (**Outbound** or **Managed**), select a **Job Name** and click **Sign in** to log in to Proactive Contact.



The agent is automatically put into the **Available** mode upon successful log in. Verify that the agent receives an outbound call and the customer information is displayed on the screen.

## 9. Conclusion

These Application Notes describe the required configuration steps for R Systems Indus Collections to successfully interoperate with Avaya Proactive Contact using Avaya PG230 Digital Switch. All test cases were completed successfully

## 10. Additional References

This section references Avaya and R Systems product documentation that are relevant to these Application Notes.

Avaya product documentation can be found at <http://support.avaya.com>.

- [1] *Administering Avaya Aura™ Communication Manager*, Release 5.2, Issue 5.0, May 2009, Document Number 03-300509.
- [2] *Implementing Proactive Contact 4.1*, March, 2009.
- [3] *Avaya Proactive Contact 4.1 Administering Avaya Proactive Contact (Linux-based Interface)*, March 2009.
- [4] *Avaya Proactive Contact 4.1 Using Avaya Proactive Contact Supervisor*, March 2009.
- [5] *Avaya Proactive Contact 4.1 Agent API Reference*, March 2009.

Product information on Indus Collections can be found at:  
[http://www.indussoft.com/Products\\_Collections.htm](http://www.indussoft.com/Products_Collections.htm).

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