Providing telecommunications security

Telecommunications security (voice, data, and video communications) is the prevention of any type of intrusion to (that is, either unauthorized or malicious access to or use of) your company's telecommunications equipment by some party. Your company's "telecommunications equipment" includes both this Avaya product and any other voice/data/video equipment that could be accessed via this Avaya product (that is, "networked equipment").

An "outside party" is anyone who is not a corporate employee, agent, subcontractor, or person working on your company's behalf. Whereas, a "malicious party" is anyone (including someone who may be otherwise authorized) who accesses your telecommunications equipment with either malicious or mischievous intent.

Such intrusions may be either throttled through synchronous (time-multiplexed and/or circuit-based) or asynchronous (character-, message-, or packet-based) equipment or interfaces for reasons of:

- Use (of capabilities special to the accessed equipment)
- Theft (such as, of intellectual property, financial assets, or toll-facility access)
- Eavesdropping (privacy invasions to humans)
- Mischief (troubling, but apparently innocuous, tampering)
- Harm (such as harmful tampering, data loss or alteration, regardless of motive or intent)

Be aware that there may be a risk of unauthorized intrusions associated with your system and/or its networked equipment. Also realize that, if such an intrusion should occur, it could result in a variety of losses to your company (including, but not limited to, human and data privacy, intellectual property, material assets, financial resources, labor costs, and legal costs).

Your responsibility for your company's telecommunications security

The final responsibility for securing both this system and its networked equipment rests with you, an Avaya customer's system administrator, your telecommunications peers, and your managers. Base the fulfillment of your responsibility on acquired knowledge and resources from a variety of sources, including, but not limited to:

- Installation documents
- System administration documents
- Security documents
- Hardware/software-based security tools
- Shared information between you and your peers
- Telecommunications security experts

To prevent intrusions to your telecommunications equipment, you and your peers should carefully program and configure:

- Your Avaya-provided telecommunications systems and their interfaces
- Your Avaya-provided software applications, as well as their underlying hardware/software platforms and interfaces
- Any other equipment networked to your Avaya products.

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Document ordering information:

For the most current versions of documentation, go to the Avaya support Web site:

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COMPAS

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Avaya support

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1 Introduction to Advanced Segmentation

This document describes how to install and configure a single server for Advanced Segmentation.

1.1 Product overview

Advanced Segmentation provides enhanced inbound call routing that can be based on logic and data both internal and external to the call center. The main feature of AS 3.0 is the Screen Pop. Along with the Call Log feature previously introduced in AS 2.2, these features provide a new capability to the voice call center market. The screen pop capability presents agents with the appropriate caller information collected from internal and external data sources without the need for a traditional desktop CTI component.

Advanced Segmentation is invoked as an adjunct routing feature. It populates the UUI field of the voice contact with a unique AS call Id (EDU ID) that is passed to IP Agent Release 6 when the call is delivered to an agent. The EDU ID is used to query the Call Log upon an “event ringing” at the IP Agent R6 desktop to display the appropriate data via a screen pop to the agent. The Call Log functionality used by the Screen Pop feature, delivered as part of AS 2.2, includes a customizable adjunct route workflow and instructions for installing and configuring the AS Call Log. The adjunct route workflow writes the appropriate call information to the Call Log and evaluates call information to determine the appropriate call destination (routing logic). AS automatically creates a DB record for each call submitted for routing segmentation. The desktop component (IP Agent R6) requests screen pop data by configuring its screen pop option to fire an HTTP request whenever a call arrives. This HTTP request is sent to the AS server and a screen pop workflow is run to fetch and format the data for display in a web browser or other application at the agent’s desktop.

1.2 Considerations in a non-EAS Definity/Communication Manager environment

Advanced Segmentation requires the Avaya Definity/Communication Manager environment to include Expert Agent Selection (EAS) software.
2 Installation prerequisites

See Avaya Interaction Center Release 7.0 Installation Planning and Prerequisites for information on supported configurations. Advanced Segmentation requires the following software:

- Operating systems
  - Windows 2000 SP4
  - Windows Server 2003
- Database software
  - Microsoft SQL Server 2000 Standard Edition SP3a
  - Microsoft SQL Server 2000 Enterprise Edition SP3a
- Avaya Definity/Communications Manager telephony switches and software components:
  - Definity G3: R8.3, R9
    - CVLAN Server Release 9 or Release 8.2.5 or later, mode 6 or 8 on MAPD
    - CVLAN Client Release 9 or Release 8.2.5 or later
    - ADJLK Adjunct Link (not asai link) configured on the switch
    - Call Center Elite with EAS for ASAI Agent States
  - Definity G3 R10
    - CVLAN Server Release 9 or Release 8.2.5 or later, mode 6 or 8 on MAPD
    - CVLAN Client Release 9 or Release 8.2.5 or later
    - ADJLK Adjunct Link (not asai link) configured on the switch – Advanced Segmentation configures the RFA file on the switch appropriately.
    - Call Center Elite with EAS for ASAI Agent States
- Communication Manager 1.1, 1.2, 1.3, 2.0, 2.1, 2.2, 3.0

Note: The Advanced Segmentation Screen Pop capability is only available with Communication Manager 3.0 with SA8500 enabled.

- 3rd party software
  - PDF reader: Adobe Acrobat Reader 5.0 for documentation
  - Web Server: Microsoft Internet Information Server (IIS) 5.0, 6.0
  - Java SDK: Sun JDK 1.3.1_06
3 Installing the Database Server

3.1 Installation considerations

Because Advanced Segmentation is a single machine solution, the MS SQL database resides on the same machine as the Advanced Segmentation software. Ensure the following:

- The database server is configured to meet all prerequisites as detailed in Installation prerequisites.
- Each component in the prerequisites is functioning correctly.

3.2 Creating a database user

Prior to configuring the databases, create a new database user specific to this configuration. Avaya recommends establishing a new database user rather than using ‘sa’ on Microsoft SQL Server (MS SQL).

Create a new user called ‘avayadb’ that has database administrator (DBA) privileges for the instance to be used. Note that if you are using an existing database server, request the customer's DBA to create this user for you.
4 Configuring Avaya Communication Manager

You must configure Avaya Communication Manager for the Screen Pop feature of Advanced Segmentation:

1. To pass each call’s EDU ID to IP Agent R6 via the UUI field, enable the Special Application, SA8500 by doing one of the following:
   a. Installing an appropriate license file
   b. Enabling the feature on page 4 of the Special Applications form (*change system-parameters special-applications*). Enter a pair of security passwords, as well as a 20-digit Change Key, on Page 1 of the form.

```
(SA0481) - Replace Calling Party Number with ASAI ANI?
(SA0500) - Expanded UUI Display Information?
(SA0501) - Altura Interoperability (FIPH)?
(SA0504) - H245 Support With Other Vendors?
(SA0508) - Multiple Emergency Access Codes?
(SA0510) - MTT Mapping of ISDN Called-Party Subaddress IE?
(SA0517) - Authorization Code By COR?
(SA0518) - Automatic Callback with Called Party Queuing?
(SA0520) - Hoteling Application for IP Terminals?
(SA0550) - Increase Automatic HUI & VUStats ($8700 only)?
(SA0567) - PHS X-Station Mobility over IP?
(SA0569) - No Service Observing Tone Heard by Agent?
(SA0573) - Call xfer via ASAI on CAS Main?
(SA0582) - PSA Location and Display Enhancements?
(SA0587) - Networked PSA via QSIG Diversion?
(SA0589) - Background BSR Polling?
(SA0608) - Increase Crisis Alert Buttons ($8700 only)?
(SA0621) - SCH Feature Enhancements?
```

Figure 1: Special Applications form – Page 4

2. To facilitate the Screen Pop associated with a given call to other IP Agent desktop’s upon the transfer or conference of the call, enable the “Copy ASAI UUI During Conference/Transfer” capability on page 12 of the Feature-Related System Parameters Features form (*change system-parameters features*).
## FEATURE-RELATED SYSTEM PARAMETERS

**AGENT AND CALL SELECTION**
- Min Across Splits or Skills? [ ]
- ACW Agents Considered Idle? [ ]
- Call Selection Measurement: **current-wait-time**
- Service Level Supervisor Call Selection Override? [ ]
  - Auto Reserve Agents: none

**ASAI**
- Copy ASAI UUI During Conference/Transfer? [ ]
- Call Classification After Answer Supervision? [ ]
  - Send UCID to ASAI? [ ]

**CALL MANAGEMENT SYSTEM**
- Adjunct CMS Release: 8.3U6
- BCMS/UuStats LoginIDs? [ ]
- BCMS/UuStats Measurement Interval: hour
- BCMS/UuStats Abandon Call Timer (seconds):
- Validate BCMS/UuStats Login IDs? [ ]
  - Clear UuStats Shift Data: on-login
  - Remove Inactive BCMS/UuStats Agents? [ ]

---

**Figure 2: Feature-Related System Parameters form – Page 12**
5 Installing Core Avaya Advanced Segmentation Components

To install the core Avaya Advanced Segmentation components:

1. Log into the Windows system as a user with administrative rights.

2. Insert the Avaya IC 7.0 CD.

3. From the installation menu that appears, select Servers, Design & Administration Tools.

4. Accept the terms of the License Agreement.

5. For the Installation Directory, accept the default directory or use another path if required by the customer.

6. At the Feature Selection prompt, select both Interaction Engine Server and Design and Admin.

7. Select Next to show a summary of components to be installed.

8. Select Next to begin the software installation.

Note: Selecting the server component installs all server files, including web and email. Therefore, the installation of the files takes some time to complete. For Advanced Segmentation, the web and email servers are not configured.

9. For “Do you wish to run IndexQ or Outbound Reporting with this installation”, select No.

10. When the Question dialog box appears ("Sys32Update will update your System32 dll/ocx files...") , select Yes and wait for it to complete.

11. Select Finish to complete setup.

12. At the “Run Configuration Tool now?” prompt, select Yes.

13. For “Please choose the mode in which you want the Configuration Tool to run”, select Primary. The configuration tool loads.

14. In the configuration tool, select the primary mode, the IP address and Start ORBServer options.

15. Select Apply settings.

16. When a success message is displayed, exit the configuration tool.
6 Configuring the Advanced Segmentation server and databases with Install Accelerator

This section describes the various steps involved in installing and configuring the Install Accelerator (IA).

6.1 Features of Install Accelerator

Install Accelerator speeds the process of configuring servers, domains, failover scenarios and database configuration post installation, thereby reducing the chance of errors during configuration. This tool configures Advanced Segmentation in the following way:

- Creates domains:
  - Default
  - Voice1
  - User1
- Creates failover scenarios:
  - For User1 Domain: User1, Voice1, and Default
  - For Voice1 Domain: Voice1 and Default
  - For Default Domain: Default
- Creates servers per domain
  - DataServer: Default
  - ADU: Voice1
  - EDU: Voice1
  - WorkFlow: Voice1 (configures the channel using the default workflow)
  - HTTPConnector: Voice1
  - TS: Voice1
- Create the ACD and the TSGroup Name
- Creates databases and generates required windows applications
  - Creates the Application and the Repository databases
  - Imports the seed data
  - Generates the interaction_center and repository applications
  - Creates the datasources
6.2 Installing Install Accelerator

6.2.1 Prerequisites
You must meet the Advanced Segmentation installation prerequisites before installing IA and configuring IC. See Section 5 - Installing Core Avaya Advanced Segmentation Components.

6.2.2 Procedure
To install Install Accelerator:

1. Log into the Windows system as a user with administrative rights.
2. Browse the Advanced Segmentation CD to the Install Accelerator directory.
3. Run IAsetup.exe.

   The tool guides you through the installation process. The setup detects where Interaction Center is installed and installs the Install Accelerator under the `<AVAYA_IC70_HOME>\IA` directory. If the Interaction Center has not been installed, an error message is displayed and the installation process exits. If a failure occurs, install Interaction Center again and start the configuration process again.

6.3 Configuring Advanced Segmentation

6.3.1 Beginning configuration
To configure Advanced Segmentation:

1. Go to the `<AVAYA_IC70_HOME>\IA` folder.
2. Run the `IA.bat` file. This takes you through a series of screens that are described in Determining the prerequisites and Entering the Configuration Data.

6.3.2 Determining the prerequisites
The initial screen determines if the required prerequisites have been installed. If required, the user can manually indicate that a prerequisite has been fulfilled. IA checks the following:

- Interaction Center has been installed.
- The configuration tool has been run for the basic core servers.
- The ORB server is running.
- IC Manager is running.
- The SQL Server client is installed.

**Note:** You may only proceed further if all the prerequisite requirements are met. An attempt to continue without meeting the requirements may result in a configuration failure.

Select Next to proceed with the configuration. See the following for an example prerequisites screen.
6.3.3 Entering the Configuration Data

The next two screens contain basic information required to configure the various domains, servers, failover setups, ACD Name and the database for Advanced Segmentation server.

1. Enter the following parameters to configure Advanced Segmentation. See Figure 4 for an example configuration.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIC Installation Path</td>
<td>The path where Interaction Center has been installed. It defaults to the path where IA detects IC.</td>
</tr>
<tr>
<td>AIC IP Address</td>
<td>IP Address of the machine where the configuration will be done. The IP address must match with the IP address that was used for the primary configuration of the core servers. The format for this is xxx.xxx.xxx.xxx where xxx can be any number from 0 to 254 depending on the network class. Note: IA does try to pick up the IP address from the vesp.imp if possible.</td>
</tr>
<tr>
<td>AIC Host Name</td>
<td>The name of the host machine on which the servers reside.</td>
</tr>
<tr>
<td>---------------</td>
<td>--------------------------------------------------------</td>
</tr>
<tr>
<td>Minimum &amp; Maximum Port Range</td>
<td>The minimum and maximum port range that is going to be used by the servers to communicate with clients. The valid range for this is 2048 - 16000.</td>
</tr>
<tr>
<td>IC Login ID</td>
<td>The Interaction Center login id. For a new installation, the default login id is &quot;Admin&quot;. In general an IC login string can be 28 characters long, can contain alphanumeric values, and can start with a &quot;_&quot; or an alphabetic letter. It also can contain some special characters.</td>
</tr>
<tr>
<td>IC Password</td>
<td>The Interaction Center login password. For a new installation, the default password for the Admin user is &quot;admin&quot;. This password cannot contain any leading and trailing spaces and it cannot be a null string. The maximum length for this password is 30.</td>
</tr>
</tbody>
</table>

![Image](image.png)

**Figure 4. Example Configuration Data required for IA configuration, page 2**
2. Select **Next** to move to the second screen.

3. Enter the following parameters to configure IC on the second screen. [Figure 5](#) shows an example configuration.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Database Server Name</td>
<td>The name of the machine that hosts the MS SQL Database server. This name can contain up to 24 letters.</td>
</tr>
<tr>
<td>Database User ID</td>
<td>The database user account (The user should have dba privileges). The user ID is a non-null string of 1-128 alphanumeric characters.</td>
</tr>
<tr>
<td>Database Password</td>
<td>The database user password. The password is a non-null string of 1-128 alphanumeric.</td>
</tr>
<tr>
<td>Application Database Name</td>
<td>The Interaction Center's application database name. This field must start with a letter and can contain a maximum of 40 alphanumeric characters or &quot;.&quot;.</td>
</tr>
<tr>
<td>Repository Database Name</td>
<td>The Interaction Center's main database. This field must start with a letter and can contain a maximum of 40 alphanumeric characters or &quot;.&quot;.</td>
</tr>
<tr>
<td>VDN</td>
<td>The vector identifier that the PBX or ACD uses for the queue. This field can be any positive numeric value.</td>
</tr>
<tr>
<td>MAPD IP Address</td>
<td>The IP address of the MAPD card set. The format for this address is xxx.xxx.xxx.xxx where xxx can be any number from 0 to 254.</td>
</tr>
<tr>
<td>MAPD Signal Number</td>
<td>A signal number when configuring multiple Avaya users on a single machine. This field must be a numeric value within the range 1 – 8.</td>
</tr>
</tbody>
</table>
4. Select **Configure** to begin the configuration process with IA.

Before proceeding with the configuration, IA backs up the vesp.imp and ds.ffd files. During the configuration process, IA generates the IAScripter.log file in the `<AVAYA_IC70_HOME>\logs` folder. If the configuration process is successful, the appropriate domains, failover scenarios, servers, and databases are created. If the configuration process fails, IA creates an IA.err file in the `<AVAYA_IC70_HOME>\IA` folder and vesp.imp and ds.ffd files will be rolled back to the saved versions. IA displays the results when the configuration process is complete.

### 6.4 Testing the installation with a database connection

The databases have now been created and seeded and the data server is added to the CORBA environment. This allows the Directory server to connect to the repository database and read/write configuration information. In order to test that this has been completed correctly, do the following:

1. Log on to IC Manager. You are prompted to change your password. This password must conform to the default password rules. Changing the password properties in IC Manager can enable tighter or looser password requirements.
2. Select **Manager > Refresh** from the menu. The refresh of all data should show success (this data is being downloaded from the repository database).

3. If not, check in the IC Manager Alarm monitor for any specific errors. Also check the Directory server and DataServer log files (in `<Avaya_IC70_Home>/IC7/logs`).

4. For more information, select Server Status from the Advanced tab of the DataServer. The bottom section of data displayed shows information about the connection pools and their state. See Figure 6 for an example of the DataServer Server Status.

![DataServerMSSQL@Default](image)

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ServerVersion</td>
<td>6.1.0.249</td>
</tr>
<tr>
<td>ServerIder</td>
<td>3</td>
</tr>
<tr>
<td>UUID</td>
<td>3f1f6b3d000000000000a010c66232d0002</td>
</tr>
<tr>
<td>Interface</td>
<td>DataServerMSSQL</td>
</tr>
<tr>
<td>Alias</td>
<td>DataServerMSSQL</td>
</tr>
<tr>
<td>ORBUUID</td>
<td>3f1f30b000000000000a010c6623230002</td>
</tr>
<tr>
<td>ToolkitVersion</td>
<td>MTT (6.1.0.249) Jul 6 2003</td>
</tr>
<tr>
<td>ToolkitVer</td>
<td>70</td>
</tr>
<tr>
<td>StartTime</td>
<td>1059052352</td>
</tr>
<tr>
<td>Uptime</td>
<td>4339</td>
</tr>
<tr>
<td>Log</td>
<td>C:\Avaya\IC70\logs\DataServerMSSQL.log</td>
</tr>
<tr>
<td>RequestQueueLen</td>
<td>0</td>
</tr>
<tr>
<td>TransCount</td>
<td>18207</td>
</tr>
<tr>
<td>OS</td>
<td>Win: 5.0.2195 Service Pack 3</td>
</tr>
<tr>
<td>UTCTime</td>
<td>2003 07 24 14:24:51:653</td>
</tr>
<tr>
<td>TZ</td>
<td>0 minutes</td>
</tr>
<tr>
<td>Current Client Sessions Connected</td>
<td>5</td>
</tr>
<tr>
<td>Number of connection pools</td>
<td>1</td>
</tr>
<tr>
<td>Pool Connection Limit</td>
<td>15</td>
</tr>
<tr>
<td>Pool 1</td>
<td>mobility1 repository</td>
</tr>
<tr>
<td>State</td>
<td>Database Up[300]</td>
</tr>
<tr>
<td>Cleanup Thread / Connection</td>
<td>Yes / 1</td>
</tr>
<tr>
<td>Connections in Pool / Idle</td>
<td>1 / 1</td>
</tr>
<tr>
<td>Clients</td>
<td>5</td>
</tr>
<tr>
<td>Queued Requests</td>
<td>0</td>
</tr>
</tbody>
</table>

**Figure 6. Example Server Statuses for the DataServer**
6.5 Deleting unnecessary administrative accounts

The base installation creates users that are not needed in an Advanced Segmentation environment. The system performs without removing these components, but removing them may simplify administration.

To delete unnecessary administrative accounts:

1. Open IC Manager and select the Agent tab. Under administrators, you will find the following user accounts:
   - Admin
   - website
   - icmbridge

2. Leave the Admin account, and delete the website and icmbridge accounts.

3. Create an additional account for administration.

6.6 Troubleshooting

- Make sure that the MS SQL server client is installed and a user has been created.
- When configuring IC, log into Windows with an account with administration rights.
- Shut down IC Manager before proceeding with the configuration.
- Make sure the ORB server is running before proceeding with the configuration. If the configuration process fails, the orb server is shut down.
- Make sure that the repository and the application databases have different names.

6.7 Configuring IC Licensing and Web Management services

Avaya provides the customer license file. The license file is XML based. Put the license file on the server that will host your Web license manager. For Advanced Segmentation installations, this is usually the same server you are using for Advanced Segmentation. The file can reside anywhere on the server, but Avaya suggests putting the file in the `<Avaya_IC70_Home>\etc` folder.

The Web License Manager (WebLM) is a Web service that resides in the Tomcat environment. However, Avaya recommends that you not put the WebLM service onto the same Tomcat environment as the other IC components. Therefore, create multiple Tomcats environments on a single physical computer.

6.7.1 Configuring Tomcat Java Application Server

To configure the Tomcat Java Application server for a single Advanced Segmentation computer:

1. From the Start menu, open the IC Configuration Tool.

2. On the Web tab, set Tomcat Setup to Multiple.

3. Enter the path to the root directory of the Java Development Kit. For example, enter the directory `C:\jdk1.3.1_06`. 
4. Make a note of the ‘Tomcat Base Port. For example, 9600.

   The Web Server Host and DNS Domain default to the name and domain of the local computer.

5. Check the Configure Web License Manager check box.

![Avaya Interaction Center Configuration Tool](image_url)

Figure 7. Web Configuration Tool

6. Select **Apply Settings**.

7. Select **OK** in the Success box and exit the configuration tool.
6.7.2 Adding a license file

To add a license file:

1. Open a new instance of an Internet browser and enter the following URL:
   
   http://<machine_name>:<tomcat base_port>/weblm/LicenseServer

   **Note:** This URL is case sensitive. For example,
   
   http://myaicserver.mydomain.com:9601/weblm/LicenseServer.

   The Avaya WebLM application is started.

2. Select the License Administration hyperlink.

3. Enter the default password of ‘weblm’ and select **Continue**.

4. When prompted, change the Administrator password.

   The browser returns you to the login page.

5. From the login page, log in using the new password.

6. In the Install License File section of the License Administration page, select the **Browse** command button and navigate to your .xml license file (supplied separately).

7. Select the **Install** button. A success message is received.
7 Installing and configuring the Advanced Segmentation Call Log

To configure the Avaya Advanced Segmentation call log:

1. Open Database Designer by selecting Programs > Avaya Interaction Center 7.0 > Database Designer
2. From the left pane, open the CCQ Repository by clicking File>Open, navigate to the ...\IC7\design\CallCenterQ directory, and select the ccq.adl file.
3. Expand the Components folder and right click the Tables folder and select New Table.
4. Enter as_call_log in the name field.
5. Select CallCenterQ in the logical DB connection field.
6. Press Enter three times.
7. Right click the as_call_log table and select new field.
8. Enter edu_id in the name field.
9. Enter Variable Char as the type.
10. Enter 32 as the field length.
11. Add the following required fields

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>media_type</td>
<td>Variable Char</td>
<td>20</td>
</tr>
<tr>
<td>ani</td>
<td>Variable Char</td>
<td>20</td>
</tr>
<tr>
<td>dnis</td>
<td>Variable Char</td>
<td>20</td>
</tr>
<tr>
<td>record_type</td>
<td>Variable Char</td>
<td>32</td>
</tr>
<tr>
<td>createtime</td>
<td>DateTime</td>
<td>N/A</td>
</tr>
</tbody>
</table>

12. Add other customer-defined fields.
13. Select File>Save.
14. Expand the “Table Sets” folder.
15. Select the “q_qualification” Table Set.
16. Select Add.
17. Add the as_call_log table.
18. Select File >Save.
19. Select **File > Database Administration**.

20. Select **Reconfigure**, if is not already selected.

21. Select **defaultDBConnectionSet**, if it not already selected.

22. Enter your login and password.

23. Select **Run**.

24. Select **Close**.

25. Select **File > Generate Windows Application**.

26. Select interaction_center from the Application Name drop down menu.

27. Enter your login and password, if not already present.

28. Select **OK**.

29. Close Database Designer.

30. Restart the workflow server in IC Manager.
8 Configuring Workflows

Once installation and configuration of the Advanced Segmentation server is complete, you must customize the workflow templates provided with AS 3.0 specific to your application needs. The workflows include:

- `smart_route` – the adjunct call routing workflow
- `screenpop` - the screen pop workflow

See *Avaya Advanced Segmentation Workflow Customization* for specific procedures.
9 Configuring External Database Access

The adjunct call routing workflow, smart_route.rtemplate, expects to query an external database table with the Table Query block. Since this workflow is an example, the external table queried is contained in the ‘pubs’ sample database installed with Microsoft SQL Server. This section describes how to configure access to an external database in support of the Table Query block in the rtemplate workflow.

Note: The information in this section provides a specific example for configuring an external database for the adjunct routing template workflow.

9.1 Assumptions

The following assumptions apply:

- The external database is on the same server as Advanced Segmentation.
- The external database is Microsoft SQL Server.
- The external database has the same administrative login and password as ccq and repository.
- You installed the default sample database ‘pubs’ when MS SQLServer was installed.
- You have installed Advanced Segmentation.

9.2 Summary of configuration steps

The following steps need to be performed to configure external database access for the template workflow:

Using Avaya Database Designer:

1. Create a physical DB Connection to an external DB.
2. Add the physical DB connection to the logical connection set.
3. Complete the table definition for the external table.
4. Add the fields you want available to the table definition.
5. Add the table to the correct table set.
6. Build, save and activate the configuration.
7. Modify the data in the pubs.authors.phone field to reflect the ANI from which you are dialing.

9.3 Using the Avaya Database Designer to configure an external database

9.3.1 Create a physical database connection

1. To open Avaya Database Designer, use the Start button to navigate to: Start >Programs >Avaya Interaction Center 7.0->Database Designer.

2. Select File >Open and open the file $AVAYA_HOME\design\CallCenterQ\ccq.adl, where $AVAYA_HOME is the install directory for IC 7.0.

3. In the tree pane on the left, select Components >Physical DB Connections
4. Right click the Physical DB Connections node in the tree pane and select **New Physical DB Connection** as shown in **Figure 8**.

![Figure 8. Select New Physical DB Connection](image)

A Physical DB Connection property sheet is displayed to the right (**Figure 9**).

5. Enter the following information:

   a. Enter **externalDBConnection** for Name.

   b. Enter **Connection to pubs sample database** for Description.

   c. For the Database Type dropdown list, select **SQLServer**. The bottom section changes to show SQLServer specific properties.

   d. Enter the full name of the Advanced Segmentation server in the Database Server field. In the example below, the value entered is “ravok_ic.crml.avaya.com”

   e. Enter **pubs** for Database Name.

   f. Leave all other fields as they are. The final configuration should look like **Figure 9**.
9.3.2 Add the physical DB connection to the logical connection set

1. Navigate to **DB Connection Sets >defaultDBConnectionSet** in the tree pane at left.

2. Select **Add**. You see a screen similar to Figure 10.
Figure 10. Map logical DB connection to physical DB connection

3. Enter **ExternalData** for Select a Logical DB Connection. Note: This value is not available in the dropdown list. You must enter the value manually.

4. Select **externalDBConnection** from the dropdown list for Physical DB Connection definition.

5. Uncheck the box next to Primary. Your screen should look like Figure 11.
6. Select Finish. The Logical DB Connection property screen looks like Figure 12.
9.3.3 Create a table definition for the external database table

Creating the table definition requires three steps:

- Create the table and add the primary key field ‘pkey’, which is required.
- Add all of the fields from the external table to the table definition.
- Replace the ‘pkey’ primary key with the actual primary key of the external table.

To create a table definition for the external database table:

1. Navigate to the Components->Tables node of the tree pane on the left.
2. Right click the Tables node and select New Table as shown in Figure 13.
3. On the New Table screen, enter the following:

   a) Enter **as_authors** for Name. This is the name of the table as known by DCO and all of Advanced Segmentation. It is a different name than the ‘pubs.authors’ table and shows that you can name tables and fields anyway you want in Database Designer, as long as you map them to the actual database table and field names correctly.

   b) Enter **authors table in pubs sample database** for Description. See Figure 14.

   c) Select **Next**.
d) On the next screen, select **ExternalData** from the dropdown list.

e) Select **Next**.

f) On the next screen, enter **authors** for the name of the external database table and leave the second field blank, as shown in **Figure 15**.

g) Select **Next**.

h) Accept the defaults to assign a primary key to the new as_authors table.

i) Select **Finish**. You now see the property screen for as_authors table along with the primary key field created as in **Figure 16**.
9.3.4 Complete the table definition for the external table

To complete the table definition of the as_authors table, you must have access to the schema of the pubs.authors table. In turn, you need to map that schema to the as_authors table definition. The table below shows that mapping. Note that the pubs.authors.contract field is not added to the table definition.

<table>
<thead>
<tr>
<th>pubs.authors table schema</th>
<th>ccq.as_authors table definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field name</td>
<td>Field type</td>
</tr>
<tr>
<td>au_id</td>
<td>varchar(11)</td>
</tr>
<tr>
<td>au_lname</td>
<td>varchar(40)</td>
</tr>
<tr>
<td>au_fname</td>
<td>varchar(20)</td>
</tr>
<tr>
<td>phone</td>
<td>char(12)</td>
</tr>
<tr>
<td>address</td>
<td>varchar(40)</td>
</tr>
<tr>
<td>city</td>
<td>varchar(20)</td>
</tr>
<tr>
<td>state</td>
<td>char(2)</td>
</tr>
<tr>
<td>zip</td>
<td>char(5)</td>
</tr>
</tbody>
</table>

The following procedure shows you how to add the first two fields. Add the remaining fields based on the information in the table.
1. Right click the as_authors table definition and select **New Field**. See **Figure 17**.

![Database Designer](image)

**Figure 17.** Add a new field to the as_authors table

2. Enter **au_id** for the new field name.

3. Enter **pubs.authors.au_id field** in the description for the name of the external DB field.

4. Select **Next**.

5. Enter **au_id** in the “What is the name of the field in the database” box. This field is the name of the field in the external database table pubs.authors.

6. Select **Variable Char (varchar)** from “What is the type of the field” dropdown list box.

7. Enter **11** in the “What is the length of the field?”

8. Select ‘Yes’ for read-only and ‘Yes’ for required. Your screen should look like **Figure 18**.

9. Select **Next**.
10. Select OK when the warning box pops up.

11. On the next screen, leave the default value empty and select Finish.

You have now successfully added the pubs.authors.au_id field to the as_authors table definition.

12. To add another field to the as_authors table definition, right click the as_authors table definition in the left pane and select New Field. Now add the pubs.authors.au_lname external database table field to the as_authors table definition. You should see the initial New Field screen as in Figure 19.

13. Enter lastname for the new field and pubs.authors.au_lname as the description.

14. Select Next.
15. On the next screen, enter

- Enter \texttt{au_lname} for the database field
- Select \texttt{Variable Char} with a length of 40
- Leave the read-only checked as ‘No’
- Leave the required fields checked as ‘Yes’. See Figure 20.

16. Select \texttt{Next}.

17. Select \texttt{Finish}.

Figure 19. Adding a new field to a table

Figure 20. New Field completed entries
18. Repeat steps 10 through 17 for all of the remaining fields listed in the table above. Use the information in the field mapping table to correctly map field names in the pubs.authors table to the as_authors table definition. Do not add the pubs.authors.contract field.

19. When you are finished, select the as_authors table in the left pane under Components > Tables and select the Children tab on the property sheet. You see the final list of fields as shown in Figure 21.

![Database Designer](image)

**Figure 21. Field list for as_authors table**

The last step is to change the primary key field of the as_authors table to be the au_id field instead of the pkey field and then delete the pkey field. This is necessary to correctly mimic the schema of the external table. It is recommended that you keep the field name of any primary or foreign keys of the external table the same in the table definition.

1. Select the as_authors table in the left tree pane and make sure the properties tab is selected in the right pane. See Figure 22.
2. Select **New Key** at the bottom of the screen. A New Key screen pops up.

3. Enter **au_id** in the text field and select the Primary Key radio button.

4. Select **Next**. A Database Designer exception screen pops up asking if you want to continue.

5. Select **Yes**.

   A secondary New Key screen appears, showing all possible fields available to be part of the new key.

6. Single click the **au_id** field in the left list and click **Add**. The **au_id** field is now the primary key as shown in Figure 23.

7. Select **Finish**.

---

Figure 22. as_authors table properties
Figure 23. New key field entry

The as_authors properties screen looks like Figure 24, with au_id listed as the primary key.

Figure 24. as_authors properties
8. Select the Children tab.

9. Find the pkey field in the first column.

10. Right click the pkey field and select **Delete**. You have now successfully added the as_authors table definition.

### 9.3.5 Adding the as_authors Table Definition to a Table Set

Now that you have successfully created the as_authors table definition, the table must be added to the table set that is used by all the workflows, including the template workflow. By convention, the Workflow Server uses interaction_center as the IC data source. This data source contains the q_qualification network, which contains a specific set of table sets and their corresponding tables. The q_qualification table set contains all of the tables used for qualification workflows. This is the table set where the as_authors table is added. It is highly recommended that table definitions for all external database tables that are accessed from a workflow be placed into the q_qualification table set.

1. In the tree pane on the left, navigate to **Components >Table Sets >q_qualification**. The properties of the q_qualification table set are displayed on the right as shown in Figure 25.

![Figure 25. q_qualification table set](image)
2. Select Add.

3. Scroll down and select the as_authors table.

4. Select OK when a pop up screen is displayed asking for a table alias. The as_authors table is now part of the q_qualification table set.

5. Select File > Save from the menu to save your work. You have now successfully added the pubs.authors table to the ccq database with the table name as_authors. From here, the workflow only knows about the as_authors table as you defined it and has no knowledge of the pubs database or the authors table.

6. To activate these changes in Advanced Segmentation, perform steps 19 through 30 as listed in Section 7.

9.4 Modifying the data in the pubs.authors.phone field

The Table Search block in the rtemplate workflow searches the as_authors table by setting the phone field to the ANI received by the workflow. The sample pubs.authors table’s phone field has arbitrary telephone numbers. You must modify the data in this field to reflect the actual ANI values you are using and to affect the retrieval of data. This must be done from within Microsoft SQL Server. Use either SQL Server Enterprise Manager or the SQL Query Analyzer to make the appropriate changes.