Abstract

These Application Notes describe the configuration steps required for Envox CT Connect to interoperate with Avaya IP Office. Envox CT Connect is a Computer Telephony Integration (CTI) middleware platform that provides call control and monitoring functionality through various application programming interfaces to end user applications.

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

Envox CT Connect is computer telephony call control server software capable of connecting a variety of TDM and VoIP telephone switches to distributed computer application environments. Envox CT Connect interoperates with Avaya IP Office using Third Party Telephony Application Programming Interface (TAPI) to provide Computer Telephony Integration (CTI) call control and monitoring functionality and application programming interfaces to end user business applications.

![Envox CT Connect with Avaya IP Office 412](Image)

**Figure 1: Envox CT Connect with Avaya IP Office 412**

Envox CT Connect utilizes a client/server model to support client applications that can be developed with C, C++, Java, TAPI, and ActiveX to enable application developers to integrate call control features into existing business applications.

The server component of the software runs under Microsoft Windows operating system environments, and supports call control and monitoring through links to telephony switches. The software also includes client application programming interfaces for Microsoft Windows 2000, Microsoft Windows 2003, Microsoft Windows XP, Sun Solaris, Hewlett-Packard HP-UX, Compaq Tru64 UNIX, and OpenVMS operating systems.

The compliance testing focused on verification of the Envox CT Connect server with Avaya IP Office, and did not include verification of interfaces between the Envox CT Connect server with the Envox CT Connect client applications. An Envox CT Connect test tool was utilized to emulate client applications to initiate call actions, verify feature functionality, and troubleshoot.
The range of applications that can be developed utilizing Envox CT Connect includes:

- Customer relationship management
- Call recording and quality monitoring
- Contact center workforce management
- Contact center
- Help desk
- Interactive voice response
- Screen pop

2. Equipment and Software Validated

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

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avaya IP Office 412</td>
<td>4.1(9)</td>
</tr>
<tr>
<td>Avaya IP Office Manager</td>
<td>6.1(9)</td>
</tr>
<tr>
<td>Avaya C364T-PWR Converged Stackable Switch</td>
<td>4.3.12</td>
</tr>
<tr>
<td>Avaya 4600 Series IP Telephones</td>
<td>2.8 (H.323)</td>
</tr>
<tr>
<td>Envox CT Connect on Dell PC</td>
<td>7.0 build 742 SP3 Windows XP Professional</td>
</tr>
</tbody>
</table>
3. Configure Avaya IP Office

The configuration information provided in this section describes the steps required to set up Avaya IP Office for this solution. For all other provisioning information, such as Avaya IP Office installation and configuration, etc., refer to Avaya IP Office product documentation in Section 9.

3.1. Verify Avaya IP Office CTI License

Log into the Avaya IP Office Manager PC and go to Start → Programs → IP Office → Manager to launch the Manager application. In the Manager window, select File → Open Configuration to search for Avaya IP Office in the network. Select the Avaya IP Office system by checking the system name as seen below. Log into Avaya IP Office using the appropriate login credentials to receive it’s configuration.

Ensure that the Avaya IP Office serial license dongle is connected to the Avaya IP Office Manager PC. In the Manager window, go to the Configuration Tree and click on License → CTI Link Pro and verify that License Status is “Valid”. If a license is needed right click on License in the configuration tree and select New from the drop-down menu. Enter the license code for the CTI Link Pro license into the License Key field and click OK (not shown). In the Manager window, select File → Save Configuration. The configuration of Avaya IP Office is saved and the user is prompted to reboot Avaya IP Office.
3.2. Install Avaya TAPI Driver
Log into the Envox CT Connect server using an account with administrative privileges. Using the Avaya IP Office User CD, start the Avaya IP Office User Suite installation. The automatic process displays the screen below. Check TAPI to install the Avaya IP Office TAPI driver on the PC. Click Next to complete the installation of the Avaya IP Office User Suite. At the InstallShield Wizard Complete window, click Finish.

![InstallShield Wizard](image)

Go to the Windows Control Panel and open Phone and Modem Options. Click the Advanced tab, select Avaya IP Office TAPI2 Service Provider and click Configure….

![Phone and Modem Options](image)
In the Avaya TAPI2 configuration window that is displayed, set **Switch IP Address** to the IP address of Avaya IP Office, select **Third Party** and set **Switch Password** to the Avaya IP Office password. Leave all other parameters at their default values. Click **OK**. In the Phone and Modem Options window, click **OK**. Reboot the PC for the new changes to take effect.
4. Configure Envox CT Connect

This section provides the procedures for configuring the Envox CT Connect server. The procedures include the following areas:

- Launch configuration program
- Administer link
- Administer switch type
- Administer IP address and link number

4.1. Launch Configuration Program

Envox CT Connect uses a GUI based configuration program to configure communication links between the Envox CT Connect server and telephone switches. From the Envox CT Connect server, launch the configuration program by selecting Start ➔ All Programs ➔ Envox CT Connect ➔ Configuration Program as shown below.
4.2. Administer Link
The Envox CT Connect Server Configuration screen is displayed. Enter a descriptive name for the **Enter a Logical Identifier** field, in this case “ipoffice”. Click on the **Add** button.

4.3. Administer Switch Type
Select **Avaya IP Office** from the list and click **Next**.
4.4. Configuring Link to Avaya IP Office
Verify the following default values for the specified fields. Click on **Save**.
5. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing. The feature testing focused on verifying Envox CT Connect handling of TAPI messages in the areas of call control and event notification. The serviceability testing focused on verifying the ability of Envox CT Connect to recover from adverse conditions, such as re-starting the Windows Telephony service.

5.1. General Test Approach

All feature and serviceability test cases were performed manually. The Envox CT Connect test tool was used to emulate client application’s initiation of call control and device monitoring. Incoming calls were made to the monitored/controlled/routing devices to verify proper handling of event reports and routing requests by Envox CT Connect. The verification included both manual checking of proper states at the telephone sets, and capturing TAPI message traces and analyzing them with the Envox CT Connect test tool. The following features are supported and were tested:

Call control
- Make and Answer a call
- Hold and Retrieve a call/Hold and make another call
- Attended Transfer a call

5.2. Test Results

All feature test cases were executed and passed.
6. Verification Steps
This section provides the tests that can be performed to verify proper configuration of Avaya IP Office TAPI link and Envox CT Connect.

6.1. Verify Avaya IP Office TAPI Link
On the Envox CT Connect server. Go to Start → Run and enter dialer.exe in the run dialog box to open the Windows Phone Dialer application. In the Phone Dialer tool bar click on Edit → Options. In the Lines tab, select the Phone Calls drop-down list. If one or more “IP Office Phone: XXX” (where XXX is an extension number) entries appears, then the Avaya IP Office TAPI Driver is installed and working properly.

![Options](image.png)
6.2. Verify Envox CT Connect

From the Envox CT Connect server, select Start → All Programs → Envox CT Connect → Control Program to bring up the Envox CT Connect Control Program screen below. Check that the Link State associated with the administered Logical Identifier from Section 4.2 (in this case “IPOFFICE”) is “ON”.

![Envox CT Connect Control Program](image)

- Link Control
  - Off
  - Tracing
  - Information
  - Statistics
  - Reporter On

- Server Information
  - License
  - Version
  - Protocols

- Transport
  - DCE/RPC
  - JNMP
7. Support
For technical support on Envox CT Connect, contact the regional Envox support center or the local Envox distributor. Envox technical support contact details are as follows:

**Americas**
+1 508 898 2600  
us.support@envox.com

**EMEA**
+44 1252 61 8888  
euro.support@envox.com

**Asia Pacific**
+65 6358 2241  
asia.support@envox.com

8. Conclusion
These Application Notes describe the configuration steps required for Envox CT Connect 7.0 to interoperate with Avaya IP Office 4.1. All feature and serviceability test cases were completed.

9. Additional References
This section references the product documentation that is relevant to these Application Notes.

Avaya product documentation can be found at [http://support.avaya.com](http://support.avaya.com).


Envox CT Connect product information available at:

- Envox CT Connect Product Brief
- Envox CT Connect Documentation
- Download Evaluation Server