

Using TAPI with AltWare OE 4.0

TAPI stands for Telephony Application Programming Interface. It is a specification by Microsoft for writing *telephony-based* (the application's purpose is telephony and call control) or *telephony-enabled* (the application's purpose is something else, but it supports telephony functions such as calling a contact - e.g. Microsoft Outlook, Act, Goldmine) applications. There are several off-the-shelf applications such as Microsoft Outlook, Act and Goldmine that support TAPI for calling contacts right from the application without having to manually enter the number on the telephone's keypad. If you have such an application installed at your site and would like to use this functionality using the AltServ system, you should read this document and install and configure the appropriate components.

1. Introduction to TAPI

TAPI is a collection of interfaces that are based on a 3-layer telephony architecture. This architecture is depicted in Fig. 1.

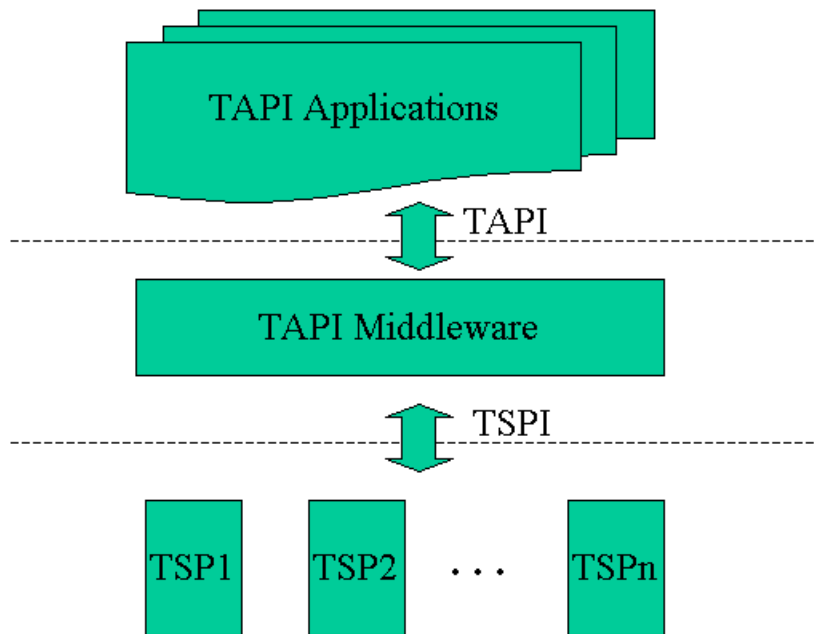


Fig. 1. 3-layer TAPI Architecture

The service providers implement the telephony functions necessary to write a telephony application as specified in the TSPI. The phone system manufacturer typically implements this layer so that all the TAPI applications can function with the phone system. Microsoft implemented the TAPI middleware and this layer aggregates all the service providers available and provides a uniform API to the applications. It also adds value by implementing a few other high level functions. The application layer is where all the applications such as Microsoft Outlook function. These applications are written to TAPI specification so that they can work with any phone system that has its own service provider.

TAPI functions are of two kinds:

- First party call control functions - these are the functions that control the device directly. These functions are specified in TAPI version 1.4.
- Third-party call control functions - these are functions that instruct a phone system such as the AltiServ system to control telephony devices such as trunks and extensions. These functions are specified in TAPI version 2.1.

With Windows 2000, Microsoft released a new version of TAPI called TAPI 3.0 that provides an object oriented API for telephony functions. Even though the application layer specification has been completely rewritten, the service provider interface is compatible with TAPI 2.1. Since AltiWare implements its service provider based on TAPI 2.1, applications written to TAPI 3.0 can make full use of all the telephony functions implemented by AltiWare.

2. AltiGen's TAPI Implementation

In earlier versions of OE, AltiGen implemented a TAPI Service Provider (TSP) only and relied completely on Microsoft's middleware to support clients running over a network. However, Microsoft's support for remote clients required that the installation have a complete NT server environment including domains and directory. It required the client systems to belong to the same NT domain, the remote user to have an account on the NT domain, etc. Overall, installing, maintaining and supporting a TAPI-based application resulted in a lot of work and hence made it a very expensive solution.

In OE 4.0, AltiGen has implemented an innovative solution to overcome the problems mentioned above. The new solution does not rely on Microsoft's middleware to support remote clients and implements that functionality by itself using TCP/IP. This new architecture is depicted in Fig. 2.

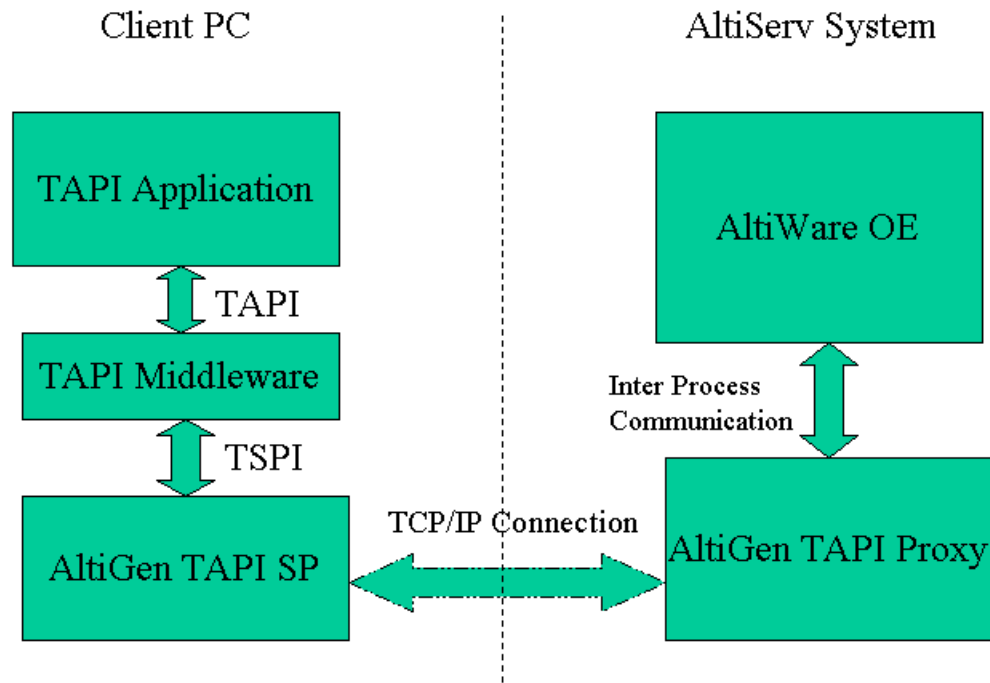


Fig 2. AltiGen's TAPI Implementation

TAPI Gateway consists of two components:

1. *TAPI Proxy Server* - this component should be installed on the AltiServ system and this component actually implements all the TSP functionality by communicating with the AltiServ software components. It runs as an NT service.
2. *TAPI Service Provider* - this component should be installed on each client system that intends to use a TAPI application.

These two components communicate with each other using AltiGen's own TCP/IP based protocol called AltiLinkPlus. Since there is no requirement other than that the client and the server systems should have a TCP/IP connection, the installation, maintenance and support for TAPI applications should be very easy and straightforward.

As is evident from Fig. 2, when a client application registers with TAPI for controlling a telephony device such as an extension, AltiServ will send all events happening on that device to the TAPI proxy, which will, in turn send the events to the client system's service provider. The service provider will report these events to the TAPI middleware on the client system and TAPI will report them to the client application. Similarly, when the client application sends a command to TAPI, it is transported all the way to the AltiWare system software and the results are sent back via the same components.

The important point to note is that all the communication that goes on below the TAPI layer on the client system is transparent to the application itself. Thus, the support for TAPI applications has been greatly simplified in OE 4.0.

3. System Requirements

In order to use TAPI applications such as Microsoft Outlook, Act 2000 and Goldmine successfully, your environment has to meet certain requirements. These requirements are given below for your reference. Before implementing TAPI in an environment, you should make sure these requirements are met and also make sure you understand the restrictions and exceptions to the TAPI support in OE 4.0 as outlined in section 6.

3.1. Server Requirements

The server system (AltiServ system) should meet the following requirements to support TAPI:

- Windows NT Server 4.0 with Service Pack 6a *or* Windows 2000 Server
- AltiGen telephony boards (Quantum and/or Triton boards)
- Sufficient memory for your configuration as indicated in AltiWare Installation Manual
- Network connection with TCP/IP enabled
- Center (Option Pack) license
- One session license for each concurrent TAPI client connection
- AltiGen TAPI Proxy Server 4.0 software

3.2. Client Requirements

The client system should meet the following requirements to support TAPI:

- Windows 98, Windows NT 4.0 with SP 6a or Windows 2000
- Network connection with TCP/IP enabled
- AltiGen TAPI Service Provider 4.0 software
- A TAPI application (Phone Dialer, Outlook, etc.)

4. Server Installation

Before you install the client software (TAPI SP), you should prepare the server system. The first step in preparing the server system is to install and configure the AltiWare OE software. For more details on this step, refer to AltiServ Installation and Configuration Manual. Once you have installed the telephony hardware, installed the AltiWare software and configured it, test the system by making a few calls into and out of the system and make sure it works as expected.

Then, install the TAPI Proxy Server software. This software ships in the Center 4.0 Server CD. Run the SETUP.EXE file from the TAPIPROXYSETUP folder. Remember that you should be logged in as a user that has Administrator privileges to install the software properly.

Once you install this server component, the service is started automatically. No configuration parameters need to be set on the server.

5. Client Installation

Before you begin client installation, make sure that the client system meets all the requirements listed in section 3.2. Then, check that the server installation is complete. You should also note down the name or the IP address of the server.

From the TAPISPSETUP folder in the Center 4.0 Server CD, run the SETUP.EXE file. This will launch the setup wizard that will walk you through the installation process. During installation, you will be asked for the following information:

- *Server IP address* - enter the name or the IP address of the AltiServ system to which your extension belongs

- *Extension Number* - enter your extension number
- *Password* - enter your AltiServ voicemail password

Now, you are ready to use TAPI application from your client PC. To test your client installation, launch *Phone Dialer* from *Start=>Programs=>Accessories*. Enter a number to call in the *Number to Dial* box and then click on *Dial* button. If the installation is correct, your extension should ring and once you pick up the phone, the system will dial the number you entered and you will be connected to that number.

If it does not work or if you need to change any of your configuration parameters,

- Go to *Start=>Settings=>Control Panel=>Telephony*. (In the case of Windows 2000, go to *Start=>Settings=>Modem and Phone Options*)
- Click on the *Telephony Drivers* tab. (In the case of Windows 2000, click on the *Advanced* tab)
- You should see an entry called *AltiGen™ Communications Service Provider*. Choose this entry and click on the *Configure* button.
- You will get a dialog box with an entry for your extension. Select that entry, and click on the *Configure* button.
- To change any parameters, you should delete this entry and create a new entry with the new values.
- To delete an entry, click on the *Extension* button. In the new dialog box, enter the extension number and password of the entry you want to delete and click on the *Delete* button.
- To add an entry, click on the *Extension* button. In the new dialog box, enter the extension number and password of the entry you want to add and click on the *Add* button.

6. Restrictions and Exceptions

In OE 4.0, *only* outbound dialing functions are supported in the TAPI gateway. With this support, a client application can make outbound calls from an extension.

TAPI call control functions such as transfer, hold, park, etc. are *not* supported in OE 4.0.