



# ZOIPER

## softphone

*API Documentation Version 2.04*

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# 1. Introduction

Zoiper API interface is designed for use with programming languages, capable to connect to OLE Automation servers. Its purpose is to provide control over Zoiper functions and events, so it could be embedded in other applications.

The API provided with Zoiper consists of several enum types and two dual interfaces, which provides the functionality needed by the application for using Zoiper.

The Automation server is registered in the system by executing the Zoiper executable with the **/regserver** parameter and is unregistered with **/unregserver**.

## 2. Constants and enums

**TLineStyle** - this enum type is used to hold one of the line state constants and represents the current state of a given line. It is used with the information events and cannot be set to a line.

⇒ The **Line state** constants are as follows:

- **lsDown** - there is no call on the line. Also indicates that a call has ended.
- **lsDialing** - the line is dialing but still no meaningful state.
- **lsActive** - the line is active i.e. has voice activity from the remote side (probably IVR or some server side ringing sounds), but the call is not answered.
- **lsRinging** - there is an incoming call on the line.
- **lsWaitForAnswer** - the outgoing call is ringing on the remote side.
- **lsUp** - the call is on, both sides are hearing each other. This is the only call state that can be transferred and put on hold.
- **lsResolvingPort** - resolving STUN port.

**TRegistrationResult** - this enum type holds information for a registration result, provided by the registration events

⇒ The **Registration result** constants are as follows:

- **rrRejected** - registration is rejected by the server (unsuccessful).

- **rrAcknowledged** - registration is acknowledged by the server (successful).
- **rrTimeout** - no reply from the server.

**TCodecs** - this enum type represents the codecs that can be used by the phone.

⇒ The **Codec** constants are as follows:

- **cPCMU** - G.711 u-law codec
- **cGSM** - GSM codec
- **cG723** - not used
- **cDVI4\_8K** - not used
- **cDVI41\_6K** - not used
- **cLPC** - not used
- **cPCMA** - G.711 a-law codec
- **cG722** - not used
- **cL16\_2CH** - not used
- **cL16\_1CH** - not used
- **cQCELP** - not used
- **cCN** - not used
- **cMPA** - not used
- **cG728** - not used
- **cDVI4\_11k** - not used
- **cDVI4\_22k** - not used
- **cG729** - not used
- **cCELB** - not used
- **cJPEG** - not used
- **cNV** - not used
- **cH261** - not used
- **cMPV** - not used
- **cMP2T** - not used
- **cH263** - not used
- **cSpeex\_Narrow** - SpeeX narrowband codec
- **cSpeex\_Wide** - SpeeX wideband codec
- **cSpeex\_Ultra** - SpeeX ultraband codec
- **ciLBC\_30** - iLBC codec(30ms frame)
- **ciLBC\_20** - iLBC codec(20ms frame)
- **cTel\_Event** - not used
- **cG726** - not used

**TDTMFCodes** - this enum type describes the DTMF tone codes used by the phone.

⇒ *DTMF codes are as follows:*

- **dtmfc0** - DTMF tone digit 0;
- **dtmfc1** - DTMF tone digit 1;
- **dtmfc2** - DTMF tone digit 2;
- **dtmfc3** - DTMF tone digit 3;
- **dtmfc4** - DTMF tone digit 4;
- **dtmfc5** - DTMF tone digit 5;
- **dtmfc6** - DTMF tone digit 6;
- **dtmfc7** - DTMF tone digit 7;
- **dtmfc8** - DTMF tone digit 8;
- **dtmfc9** - DTMF tone digit 9;
- **dtmfcAsterisk** - DTMF tone symbol asterisk(\*);
- **dtmfcPound** - DTMF tone symbol pound(#);
- **dtmfcA** - DTMF tone letter A;
- **dtmfcB** - DTMF tone letter B;
- **dtmfcC** - DTMF tone letter C;
- **dtmfcD** - DTMF tone letter D.

**TAccountTech** - this enum represents the technology used by an account.

- **atSIP** - account uses SIP protocol technology;
- **atIAX** - account uses IAX protocol technology.

**TRegistrationState** - this enum type describes the registration state of an account.

- **rsNotRegistered** - the account is not registered;
- **rsRegistering** - the account is in process of registering;
- **rsRegistered** - the account is registered.

**TTransportType** - this enum represents the transport type used by a SIP technology account:

- **ttUDP** - the default UDP transport;
- **ttTCP** - TCP based SIP communication;
- **ttTLS** - TLS/TCP based SIP communication.

**TDTMF\_Style** - this enum represents the method of sending DTMF tones with SIP:

- **dtmfs\_RFC2833** - (default)- for DTMF RFC-2833 method of outband DTMF sending using the RTP protocol;
- **dtmfs\_SIPINFO** - for DTMF SIP INFO method of outband DTMF sending using the SIP protocol. It is useful when the RTP traffic is not going through the proxy server or PBX.

**TTransferRequestStyle** - this enum represents the way Zoiper handles transfer requests (with SIP conversations only):

- **trsAccept** - with each transfer attempt no pop-up window shall appear and all transfers will be accepted automatically;
- **trsReject** - with each transfer attempt no pop-up window shall appear and all transfers will be rejected automatically.;
- **trsAsk** - with each transfer attempt a pop-up window will be appearing, asking the user to confirm proceeding with the transfer;

### **3. IIdefiskAccount interface**

The **IIdefiskAccount** interface represents a Zoiper account with all of its properties and the ability to register and unregister the account. This interface has no class factory so instances of this interface can be obtained only by methods and properties of the **IIdefiskAPI** interface.

1. *The properties of **IIdefiskAccount** interface are as follows:*

- **AccountTech** - (Read Only) - the technology used by an account.
- **Name** - (Read Only) string -the name of the account.
- **Domain** - (Read/Write) string - the domain used for registration and outbound proxy server. If a different outbound proxy server is specified in the
- **OutboundProxy** property and the **UseOutboundProxy** property is set, this property will be used for registrations only (SIP only).
- **UseOutboundProxy** - (Read/Write) boolean - indicates wheather to use the outbound proxy specified in the **OutboundProxy** property.(SIP only).

- **OutboundProxy** - (Read/Write) string - this property is used to specify a different outbound proxy for a SIP account.(SIP only).
- **Host** - (Read/Write) string - the host that an IAX account should connect to.(IAX only).
- **Context** - (Read/Write) - context used by an IAX account. (IAX only)
- **Username** - (Read/Write) string - the user name that is used by the account for registration and outgoing calls.
- **Password** - (Read/Write) string - the password that is used by the account for registration and outgoing calls.
- **CallerID** - (Read/Write) string - the caller name used by the account for outgoing calls.
- **CallerNumber** - (Read/Write) string - the caller number used by the account for outgoing calls.
- **STUNHost** - (Read/Write) string - STUN server host address used for port resolving.(SIP only).
- **STUNPort** - (Read/Write) unsigned short - STUN server port used for port resolving.(SIP only).
- **STUNRefreshPeriod** - (Read/Write) long - STUN server refresh period which is used to refresh the assigned port.(SIP only).
- **UseCustomCodecs** - (Read/Write) boolean - indicates that this account uses a custom set of codecs.
- **CurrentCodecs** - (Read) array of **TCodecs** - currently selected codecs for this account. If **UseCustomCodecs** property is not set to True, this property will contain the globally selected codecs.
- **RegisterOnStartup** - (Read/Write) boolean - if True, the account is registered when the Automation server starts.
- **Registered** - (Read Only) boolean - shows if the account is registered.

- **RegistrationID** - (Read Only) integer - registration unique identifier.
- **NewMessages** - (Read Only) integer - the amount of new voicemail messages for this account. 'Registered' should be True.
- **OldMessages** - (Read Only) integer - the amount of old voicemail messages for this account. 'Registered' should be True.
- **DonotPlayRingBackTones** - (Read/Write) boolean - toggles the automatic playing of ringback tones.
- **VoiceMailCheckExtension** - (Read/Write) string - specifies the extension that is used to check account voicemail.
- **TransportType** - (Read/Write) TTransportType - this property specifies the transport protocol used by the account. (SIP only)
- **DTMFStyle** - (Read/Write) TDTMF\_Style - this property specifies the method of outband DTMF sending, used by the account. (SIP only)

2. The functions of **IIdfiskAccount** interface are as follows:

- **RegisterAccount** - no return value - registers the account to the host with the current user name and password.
- **UnregisterAccount** - no return value - unregisters the account and cancels the registration refresh.
- **EnableCodec**(Codec: TCodec; Priority: integer) - no return value - enables the codec given by Codec parameter with the given by the Priority parameter priority. The priority ranges from 1 to 65535. If **UseCustomCodecs** property is not set to true this function will not take effect.
- **DisableCodec**(Codec: TCodec) - no return value - disables the codec given by the Codec parameter.

## 4. IDefiskAPI interface

The **IDefiskAPI** interface represents the Zoiper softphone core properties, functions and events. The interface has a class factory and instances of this interface can be obtained from the client application directly. This is a multi-instance, single apartment automation server which means that many instances of the interface can be obtained and all will work on the same Zoiper instance. Zoiper doesn't work with two instances.

**IDefiskAPI** provides an interface, which allows the client application to apply all the functions to the currently selected line and to switch between lines.

The interface is also used to select one account, which is used to dial without specifying an account. Usually this is calling from external applications like a browser or Microsoft Outlook.

1. *The properties of **IDefiskAPI** interface are as follows:*

- **NumberOfLines** - (Read Only) integer - shows the number of lines supported by the Zoiper application.
- **SelectedLine** - (Read/Write) integer - read this property to see which line is currently selected. Write to this property to change the selected line. Indexing of the lines is zero based. Values above **NumberOfLines** - 1 are not accepted.
- **AccountNames** - (Read Only) array of strings - this property contains an array of all the account names present in the softphone.
- **MuteOnEarlyMedia** - (Read/Write) boolean - boolean property used to mute early media sound stream.
- **RingWhenTalking** - (Read/Write) boolean - property indicating if Zoiper will make ringing sounds if another line is not in down state.
- **RecordCalls** - (Read/Write) boolean - this property toggles the recording of calls.
- **RecordPath** - (Read/Write) string - this property sets the general path used to record calls.



- **InputDevNames** - (Read Only) array of strings - this array provides the names of all available input devices.
- **InputDevName** - (Read/Write) string - read from this property to see which input device is currently used. Write to this property to select another input device.
- **OutputDevNames** - (Read Only) array of strings - this array provides the names of all available output devices.
- **OutputDevName** - (Read/Write) string - read from this property to see which output device is currently used. Write to this property to select another output device.
- **RingDevNames** - (Read Only) array of strings - this array provides the names of all available ringing devices.
- **RingDevName** - (Read/Write) string - read from this property to see which ringing device is currently used. Write to this property to select another ringing device.
- **InputVolume** - (Read/Write) double - this property controls the input volume. It ranges from 0 to 1.
- **OutputVolume** - (Read/Write) double - this property controls the output volume. It ranges from 0 to 1.
- **MicBoost** - (Read/Write) boolean - property used to toggle the microphone boost option.
- **PCSpeakerRing** - (Read/Write) boolean - property used to toggle the ringing on the PC speaker.
- **SelectedAccount** - (Read/Write) string - read from this property to see which account is currently selected. Write to this property to select another account.
- **DefaultAccountName** - (Read/Write) string - this property is used to specify the account that will be selected when the phone starts.

- **Account**[name : string] (Read Only) **IIdefiskAccount** - this is an indexed property which will take the account name and will return an instance of the **IIdefiskAccount** interface to work with. The property will return NULL(Nothing) if this account does not exists.
- **CurrentCodecs** - (Read) array of **TCodecs** - currently selected codecs for this account. This property will contain the globally selected codecs.
- **EchoCancellation** - (Read/Write) - boolean - this property controls the use of echo cancellation filter.
- **CatchProtocolrequests** - (Read/Write) - boolean - this property enables and disables the ability of the phone to catch URL protocol(callto) requests.
- **IntegrateIntoOutlook** - (Read/Write) - boolean - property used to control the phones integration into Microsoft Outlook. Microsoft Outlook must be restarted for this to take effect.
- **MuteInput** - (Read/Write) - boolean - this property mutes and unmutes the input(microphone) for the selected line.
- **MuteOutput** - (Read/Write) - boolean - this property mutes and unmutes the output(speakers) for the selected line.
- **DisableRingingSound** - (Read/Write) - boolean - if this property is set to True it disables the ringing sounds in Zoiper
- **Version** - (Read only) - string - this property is used to determine the current Zoiper version.
- **LibraryRevision** - (Read only) - string - this property is used to determine the current Zoiper library revision.
- **IsInConference**[Line : integer] - (Read only) - boolean - this is an indexed property that is used to determine if the given Line is in conference.
- **Debug** - (Read/Write) - boolean - this property toggles the library debugging file. The debugging text file is located in the folder where Zoiper is executed from and is called "debug.log".

- **TransferRequestStyle** - (Read/Write) TransferRequestStyle - this property defines the way that Zoiper handles incoming transfer requests.

2. The functions of **IIdefiskAPI** interface are as follows:

- **Hangup** - no return value - the function is used to hangup the selected line.
- **HangupLine** - (line: integer) - no return value - the function is used to hangup the specified line by the 'line' parameter.
- **Hold** - no return value - this functions toggles hold/unhold on the selected line. The client should keep track of the state of the line. Selecting another line and than again the previous line will unhold the line.
- **Transfer** - (extension : string) - no return value - this function makes blind transfer to the given extension. If there is no one to answer this extension, the call fails.
- **EnableForwarding** - (extension : string; forwardafter: integer) - no return value - this function enables the call forwarding to the given extension after forwardafter seconds. If forwardafter is 0 then instant forwarding takes place.
- **DisableForwarding** - no return value - this function disables the call forwarding.
- **AccountNew** - (Name: string; AccountTech : TAccountTech ) - IIdefiskAccount - this function creates a new account using the specified by **AccountTech** parameter technology. In case of an account with the same name or the **AccountTech** is unknown, this function returns NULL(Nothing).
- **AccountDelete** - (name: string) - no return value - this function deletes given account.
- **Answer** - (line: integer) - no return value - this function answers the given line.
- **Dial** - (extension: string; accountname: string) - no return value - this function dials the given extension on the selected line or on the first free line if the selected line is taken. The dialing is done using the account given or if an empty string is supplied; then it uses the current selected account to dial.

- **SendDTMF** - (code: integer) - no return value - this function sends a DTMF sound to the selected line if it is not in state lsDown. The code has the following values:
  - (0 - 9) - the digits from 0 to 9
  - (10) - the asterisk digit
  - (11) - the pound digit
  - (12 - 15) - the letters form A to D
- **EnableCodec** - (Codec: TCodec; Priority: integer) - no return value - enables the codec given by Codec parameter with the given by the Priority parameter priority. The priority ranges from 1 to 65535.
- **DisableCodec** - (Codec: TCodec) - no return value - disables the codec, given by the Codec parameter.
- **SaveOptions** - no return value - this function save the current options. The options are saved automatically on server exit.
- **AddToConference** - (line: integer) - no return value - this function adds the given from the parameter "line" line if the line itself is in lsActive or lsUp state.
- **RemoveFromConference** - (line: integer) - no return value - this function removes line given from the parameter "line" from the conference.
- **AttendedTransfer** -(firstline, secondline: integer) - no return value - this function attempts to make an attended transfer i.e. to connect directly the lines given by the "firstline" and "secondline" parameters. The first line is the leading line and OnTransferXXX events will report it state. Both lines have to be in state lsUp.

3. The events of **IIdefiskAPI** interface are as follows:

- **OnRegistrationEvent** - (accountname: string; registrationresult: TRegistrationResult; newmessages: integer; oldmessages: integer) - this event is fired when a registration result is received. It provides the account name and the registration result and if the registration result is **rrAcknowledged**, both the new and old voicemail messages count.

- **OnUnregistrationEvent** - (accountname: string; registrationresult: TRegistrationResult) - this event is fired when there is an unregistration result. It provides the account name and the registration result.
- **OnLineStateEvent** - (line: integer; state: TLineState; accountname: string; format: TCodecs; callerid: string; releasecause: integer) - the line state event is fired when a line changes its state and provides the line, the new state, the account used for the call, the format that is used for the call, the callerid and the release cause if the new state is lsDown.
- **OnTextReceiveEvent** - (line: integer; text: string) - this event is fired when a line receives a text message.
- **OnURLReceiveEvent** - (line: integer; URL: string) - this event is fired when a line receives a url.
- **OnAudioLevelsEvent** - (inputlevel: integer; outputlevel: integer) - this event is fired continuously to indicate the input and output levels.
- **OnExternalDialEvent** - (extension : string) - this event is fired when there is a dial request from a browser or command line. The extension provided by this event is not dialed automatically. This event is fired only when the phone is started in COM mode only i.e. it is invisible.

## 5. Release cause codes

- 1 - unallocated
- 2 - no route to transit net
- 3 - no route to destination
- 6 - channel unacceptable
- 7 - call awarded delivered
- 16 - normal clearing
- 17 - user busy
- 18 - no user response
- 19 - no answer
- 21 - call rejected
- 22 - number changed
- 27 - destination out of order
- 28 - invalid number format

29 - facility rejected  
30 - response to status enquiry  
31 - normal unspecified  
34 - normal circuit congestion  
38 - network out of order  
41 - normal temporary failure  
42 - switch congestion  
43 - access info discarded  
44 - requested channel unavailable  
45 - pre emptied  
47 - resource unavailable  
50 - facility not subscribed  
52 - outgoing call barred  
54 - incoming call barred  
57 - bearercapability notauth  
58 - bearercapability notavail  
63 - service or option unavailable  
65 - bearercapability notimpl  
66 - channel not implemented  
69 - facility not implemented  
79 - service or option not implemented  
81 - invalid call reference  
88 - incompatible destination  
95 - invalid message unspecified  
96 - mandatory ie missing  
97 - message type nonexist  
98 - wrong message  
99 - ie nonexist  
100 - invalid ie contents  
101 - wrong call state  
102 - recovery on timer expire  
103 - mandatory ie length error  
111 - protocol error  
127 - interworking  
200 - local