

2012

Mizu Webphone

A java applet internet phone

Mizu-WebPhone is a lightweight standard based VoIP phone that can be run from web pages. Based on the industry standard SIP protocol, it is compatible with all VoIP devices and servers. It can call any other SIP soft phone (for free charge) or any landline or mobile number via a VoIP service provider of your choice.



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About

The Mizu WebPhone is a SIP client application implemented as a platform independent [java applet](#) and will run in any java enabled browser. Since it is based on the open standard [Session Initiation Protocol](#), it can inter-operate with any other SIP-based networks allowing people to make true VoIP calls directly from webpage.

Quick start

It will cost you less than 10 minutes to deploy the webphone on your website:

1. Check out the [webphone presentation](#) on our website if you haven't done it before.
2. Download the [demo package](#) and check the Example.html source code (for the basic functionality you only need to rewrite the "serveraddress" applet parameter -in the html source- to your preferred sip server address. SIP username/password can be also set as applet parameters –preconfigured or from your server side script- or let the users to enter their credentials, depending on your needs)
3. Create a similar html on your website (copy-paste the applet tag from the Example.html anywhere to your webpage and copy the webphone.jar near the html files)
4. For more advanced usage check the "other examples" directory from the demo package and read through this documentation. Use/modify the skins found in the demo package or create your own skin with simple HTML/CSS; or just hide the webphone user interface and integrate it's functionality into your existing website

Features

- **SIP** and RTP stack (compatible with any standard VoIP server or device like Cisco, Voipswitch, Asterix, softphones, ATA and others)
- Standard java applet (no software installation or native components required; runs directly from all browsers under all OS)
- **VoIP calls** with auto **QoS**
- Transport protocols: UDP, encrypted UDP, TCP, TLS, TCP tunnel, SOCKS proxy traversal, HTTP proxy traversal, **HTTP tunnel***
- NAT/Firewall support: stable SIP and RTP ports ,rport support, light STUN protocol and auto configuration
- Media protocols: **IM** (chat RFC 3428), SMS and presence capability
- RFC's: 2543, 3261, 2976, 3892, 2778, 2779, 3428, 3265, 3515, 3311, 3911, 3581, 3842, 1889, 2327, 3550, 3960, 4028, 3824, 3966, 2663, 3022 and others.
- Supported methods: INVITE ,reINVITE, ACK,PRACK, BYE, CANCEL, UPDATE, MESSAGE, INFO, OPTIONS, SUBSCRIBE, NOTIFY, REFER
- Additional features: call parking, early media, local ring-back, PRACK and 100rel, replaces
- Codec: PCMU, PCMA, **G.729**, GSM, iLBC, SPEEX
- Wideband and **ultra-wideband** codec
- Audio enhancements: Stereo output (will convert mono sources to stereo) , PLC (packet loss concealment), **AEC** (acoustic echo canceller), **Noise suppression**, Silence suppression and **AGC** (automatic gain control)
- DTMF (INFO method in signaling or RFC2833)
- Redial, call **hold**, mute, **forward** and **transfer** (attended and unattended)
- **Conference** calls (built-in RTP mixer)
- Call park and pickup
- Unlimited lines
- Balance display, call timer
- **Voice recording** (local and/or ftp upload), custom audio streaming
- Voicemail (MWI)
- Signaling and media **tunneling and encryption***
- VPN tunneling
- Click to call
- Server side integration using PHP, .NET, J2EE , etc
- Integration with any webpage or third party application
- JavaScript **API**
- Built with your own **brand-name**
- **Customizable** user interface, skins and languages
- Custom features
- Flexibility (all parameters/behavior can be changed/controlled by applet parameters and/or from java script)

*tunneling and encryption works only when used with Mizu VoIP softswitch or [tunneling server](#).

Usage examples

- The most convenient dialer that can be offered for VoIP endusers
- Buy/sell portals
- Social networking websites , facebook phone
- Click to call functionality on any webpage
- VoIP conferencing in online games
- As an efficient and portable communication tool between company employees
- VoIP service providers can deploy the webphone on their web pages allowing customers to initiate SIP calls without the need of any other equipment directly from their web browsers
- VoIP enabled support pages where people can call your support people from your website
- VoIP enabled blogs and forums where members can call each other
- VoIP enabled sales when customers can call agents
- Java Script phone
- HTTP Call Me buttons
- HTML5 VoIP
- Embedded in VoIP devices such as PBX or GSM gateways
- Integration with other web or desktop based software to add VoIP capabilities

Benefits

- Compatible with all browsers (IE, Firefox, Safari, Opera, Chrome, etc) and all OS (Windows, Linux, MAC, etc) with Java SE support
- Full compatibility with your VoIP server including Class 5 features
- Users don't have to download anything to be able to initiate true VoIP calls
- Bypass corporate firewalls, proxies and all VoIP filtering (when encryption and/or HTTP tunneling is turned on)
- No need for third party media server. Full SIP functionality is embedded so it can connect directly to your server like any other hardware IP phone or softphone. Not ActiveX based.
- Easy to use and easy to deploy (copy-paste HTML code)
- Easy integration with your existing infrastructure
- Easy integration with your existing website design
- Proprietary SIP/RTP stack guarantees our strong long term and continuous support
- Everything packaged in one single easy to use jar file

Requirements

- Java SE capable browser (Java S2SE 4+. This can be installed automatically if not found): supported by 97% of the browsers after world-wide statistics
- Java Script capable browser when the API is used: supported by 98% of the browsers after world-wide statistics
- Microphone and speakers (preferably a headset)
- Minimum 400 MHz P3 or similar processor for the advanced codec's (e.g. G.729 or speex wideband)

User interface

The webphone is shipped with a simple user interface presenting the most commonly used functions.

However you can easily customize the user interface by [applet parameters](#) (compact, width, height, color parameters, enable/disable functions etc).

If you need total control on your design then there is a [Java Script API](#) which you can use to easily customize the user interface and create your own design. This means that any web developer can easily create any user interface with their favorite tool using HTML, DHTML, AJAX, Flash, etc and run the webphone in the background or in compact mode, controlling it by javascript function calls. See the [JavaScript API section](#) for more details. Another possibility is to create your GUI in Java although this will require more time and Java knowledge.

Basic user interface examples:

Ready.

Username: 4444

Password: ●●●●●●

Audio

Connect

☒ Save Settings

1

2

3

4

5

6

7

8

9

*

0

#

Destination:

Chat

Call

Mute

Hold

Trans

Redial

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Registering...

Connect

Username: 4444

Password: ●●●●●●

Audio

Connect

☒

Line 1

Line 2

Line 3

Line 4

Mic

Spk

1

2

3

4

5

6

7

8

9

*

0

#

Destination:

Chat

Call

Mute

Hold

Trans

Redial

Skinned interface example (iPhone skin):



Deployment

Although the webphone is like a swiss army knife which can be used for many purposes, its main goal is to easily add VoIP call capabilities to your website. The whole application is built into one file making its deployment fairly easy. The file size is like a small image on your webpage, so it can be downloaded quickly by browsers. To add it to your webpage, you just have to put the webphone.jar on your web server and copy-paste a short code in your html. Any web developer can handle this task in a few minutes.

By default the applet file is named “webphone.jar”. Copy this file in your webpage directory (Usually near the html file in which you would like to be displayed. Otherwise you must enter the correct path for the codebase applet parameter).

Then copy paste the **applet** tag into your html (or compose it dynamically from any server side script like PHP or .NET)

The applet tag is defined as follow (with some basic parameters):

```
<applet
  archive = "webphone.jar"
  codebase = " "
  code = "webphone.webphone.class"
  name = "webphone"
  width = "APPLET_SIZE_WIDTH"
  height = "APPLET_SIZE_HEIGHT"
  hspace = "0"
  vspace = "0"
  align = "middle"
>
<param name = "bgcolor" value = "APPLET_COLOR">
<param name = "compact" value = "COMPACT_BOOL">
<param name = "register" value = "REGISTER_BOOL">
<param name = "call" value = "CALL_BOOL">
<param name = "serveraddress" value = "SERVER_ADDRESS">
<param name = "username" value = "CALLER_USERNAME">
<param name = "password" value = "CALLER_PASSWORD">
<param name = "callto" value = "CALLED_NUMBER">

<b>Display error here or offer java runtime download or alternative dial method (download link to your desktop softphone) b>
</applet>
```

(uppercase words must be rewritten to meaningful values)

For a working example please check the Example.htm. Enter your VoIP server address (ip or domain) for the serveraddress parameter, then you can open the Example.htm in your browser. The parameters are described [here](#).

You might also use the “**object**” tag instead of the “applet” tag in your website.

The most flexible deployment method is by using the **deployment toolkit**. This can automatically install the JRE if not already installed with the browser. For a simple example please check the “Toolkit.html” example.

```
<script src="http://java.com/js/deployJava.js"></script>
<script>
  var attributes = {codebase:'http://yourdomain.com/path',
    code:' webphone.webphone.class',
    archive: webphone.jar',
    width:300, height:330};
  var parameters = {serveraddress: 'yoursipdomain.com', username: 'USERNAME'};
  deployJava.runApplet(attributes, parameters, 1.4);
</script>
```

A more modern and flexible deployment method is by using **JNLP**. For example this allows you to customize also the “applet loading...” screen.

Please check the jnlp.htm for a working example. More details: <http://download.oracle.com/javase/tutorial/deployment/applet/deployingApplet.html>

- **GUI**

You can set any color for the GUI and enable/disable functions by applet parameters. The java applet can even be running in the background, so this will not disturb your existing web design. For more details please read through the “Appearance Parameters” section in this document. Alternatively you can use the javascript api and create your own GUI. This is documented in the “JavaScript API” section.

- **Online/Offline/Busy and other status buttons**

The status of the users can be loaded from a database. Based on the user presence you can display the different buttons with your design. This can be easily done with a little server side work (in PHP, .NET or any other language)

- When Java is not installed

Based on online statistics (<http://www.thecounter.com/stats/>) 94% of the browsers have support for java.

Using the toolkit or the JNLP deployment methods the Java engine is automatically installed on the client device.

You can always present alternative methods for users who don't have Java installed or enabled in their browsers. Most of the softphones will recognize sip uri links placed on your webpage (for example `sip://callednumber@sipserver.com`) and will start the call automatically. Alternatively you can redirect your users to download the java runtime or offer them a softphone download link in case if they don't have java enabled. You can also use the JNLP deployment method which can also download the Java runtime automatically if needed.

- Bypass security restriction

To disable the java warning when the applet first loads on user's device, you can add a valid digital certificate for the applet. This can be purchased by different vendors (trusted certificate authorities). You can check VeriSign for example. The price varies from 20 to 800 USD. Contact us if you have any technical problems (We can sign up your applet if you have purchased such certificate). For more details read the FAQ.

Applet parameters:

The most easiest way to pass applet parameters is by using the applet tag and set the parameters like:

```
<param name = "parameter_name" value = "parameter_value">
```

Alternatively you can use the Java Script [API SetParameter](#) function.

All parameters can be passed as strings and will be converted to the proper type internally by the webphone.

Parameters can be also encrypted. See the FAQ for the details.

For a basic usage you will have to set only your VoIP server ip or domain name ("serveraddress" applet parameter)

The rest of the parameters are optional and should be changed only if you have a good reason for it.

Main Parameters

The parameters can be used to control the most important settings and applet behavior like server domain, SIP authentication parameters, called party number and whether a call have to be started immediately as the applet starts or you let the user to enter these parameters manually.

serveraddress

(string)

The domain name or IP address of your SIP server. By default it uses the standard SIP port (5060). If you need to connect to other port, you can append the port after the address separated by colon.

Examples:

"mydomain.com" -this will use the default SIP port: 5060

"sip.mydomain.com:5062"

"10.20.30.40:5065"

Default value is empty.

username

(string)

this is the A number (username). The instance will authenticate with this username on your server.

When compact is true, then this parameter must be filled properly. Otherwise it can be empty or omitted (the user will have to enter it)

If you need a different name for SIP user name and Auth name then you might have to also use the "sipusername" applet parameter.

Default value is empty.

password

(string)

SIP authentication password. When compact is true, then this parameter (and also the username) must be filled properly. Otherwise it can be empty or omitted (the user will have to enter its password). This parameter can be set also in encrypted format or you can use the md5 parameter instead of the password. More details about the parameters encryption can be found in the FAQ section.

Default value is empty.

register

(boolean)

Set to true if you would like the softphone to register automatically when started (server domain, username and password must be passed by parameters).

Default value is false.

call

(boolean)

If set to true then the applet immediately starts the call with the given parameters. The serveraddress, username, password, callto must be set by parameter. Default value is false.

Usually when this parameter is true, then the “compact” is also set true.

Usually when this parameter is false, then the “compact” is also set false.

callto

(string)

can be any phone number or username that can be accepted by your server. When “call” or “compact” is true, then this parameter should be filled properly.

Otherwise it can be empty or omitted (the user will have to enter it)

Default value is empty.

Appearance Parameters

The parameters can be used to control how the applet user interface (if any) will look like.

For more customization you can write your own user interface and use the java script api to control the webphone.

applet_size_width, applet_size_height

(int)

the size of the space occupied by the applet can vary depending on the other parameters.

-if the compact parameter is set to false, than you should set the applet_size_width to 300 and the applet_size_height to 330.

-If the compact parameter is set to true, than you should set the applet_size_width to 240 and the applet_size_height to 50.

You can run this applet in hidden mode, when all parameters are passed from server side scripts. In this way you can set the applet_size_width and applet_size_height to 1.

The applet size can be set also from html.

compact

(boolean)

False: the applet will be shown in its full size with username, password input box and dial pad

True: the applet will have only a Hangup/Call button and a call status indicator. In this mode the username, password and callto parameters are already set from parameters, so when the applet is launched it immediately starts dialing the requested number.

Default value is false.

Usually when this parameter is true, than the “call” is also set true.

Usually when this parameter is false, than the “call” is also set false.

multilinegui

(boolean)

Multiple lines enable the user interface to handle more than one call in the same time. (This doesn't mean multiple server accounts/registrations. If you need to use the webphone with multiple VoIP servers at the same time, then just launch more instances)

Set to false to hide line buttons. (The phone will still be able to handle multiple calls automatically)

You can restrict the available virtual lines with the “maxlines” parameter.

When set to true, you might also have to set the “hasvolume” to 1 or 2 and the automute or autohold applet parameters described in this document.

Default is false.

lookandfeel

(string)

Controls the basic design settings. The following values are defined:

- mizu (on request)
- metal

- windows
- mac
- motif
- platform
- system

Default value is null (system specific design is loaded)

colors

(int)
 With these parameters you can customize the colors on the applet.
 Default value is empty.

The following applet parameters are defined:

- color_background
- color_label_foreground
- color_edit_background
- color_edit_foreground
- color_buton_background
- color_buton_foreground
- color_buton_dial_background
- color_buton_dial_foreground
- color_other_background

There are 3 ways to specify the color parameter:

- integer number: This number represents an opaque sRGB color with the specified combined RGB value consisting of the red component in bits 16-23, the green component in bits 8-15, and the blue component in bits 0-7
- hex number prefixed with #: representation of the color as a 24-bit integer (htmlcolor)
- the name of the color: the following values are defined: black,blue,cyan,darkgray,gray,gren,lightgray,magneta,orange,pink,red, white and yellow

language

(string)

Built-in translations. The following languages are supported:

-en: english (default)
 -ru: russian
 -hu: hungarian
 -ro: romanian
 -de: deutsch
 -it: italian
 -es: spanish
 -tr: turkish
 -pr: portugheze
 -jp: japanese

Other languages can be added on your request or just translate your html user interface.

In some countries you might also have to set the **locale** applet parameter to one of the following values: CANADA, CHINA, CHINESE, ENGLISH, FRANCE, GERMAN, GERMANY, ITALIAN, ITALY, JAPAN, JAPANESE, KOREA, KOREAN, ROOT (root locale), TAIWAN, UK, US. The default value is ENGLISH.

hasconnect

(boolean)
 Set to false if you don't need the connect button

hascall

(int)
 0: never
 1: hangup only
 2: always

hasconference

(boolean)

Set to false if you don't need the conference button and conference features.

hashold

(boolean)

Set to false if you don't need the hold button

hasmute

(boolean)

Set to false if you don't need the mute button

hasredial

(boolean)

Set to false if you don't need the redial button

hasaudio

(boolean)

Set to false if you don't need the audio button

hasincomingcall

(boolean)

Set to false if you don't need the popup for the incoming calls

haschat

(int)

0=no

1=API only

2=SMS

3=IM all (default)

hasvolume

(int)

0=no volume controls

1=dynamic (default)

2=vertical

3=horizontal (useful if you disable the multiple lines)

Set to false if you don't need the volume controls button

volumeicons

(int)

0=no

1=text (if hasvolume is set to 3)

2=icons (if hasvolume is set to 2)

displaysipusername

(boolean)

Set to true to display the "Extension" edit box.

Default is false.

When sipusername is set (by applet parameter, user input or javascript api) then it will be used as the sip username and the username field will be used only for authentication. Otherwise the “username” field will be used for both.

displaydisplayname

(boolean)

Set to true to display the “display name” input box.

Default is false.

hideusernamepwdinput

(boolean)

Set to true if you wish to hide the username/password input controls. Default value is false.

Other Parameters

These parameters are more rarely used or should be used only if you have at least a minimal technical knowledge (VoIP and/or JavaScript)

codebase

(string)

This optional attribute specifies the base URL of the applet--the directory that contains the applet's code. If this attribute is not specified, then the document's URL is used (your html page URL).

Use it if you deploy the webphone.jar in a different directory on your webserver (not the same directory as your webpage).

For the toolkit deployment use “JAVA_CODEBASE” instead of “codebase”.

Default is ‘.’ which means the same directory (the html document directory)

These parameters are more rarely used or should be used only if you have at least a minimal technical knowledge (VoIP and/or JavaScript)

use_rport

(int)

Check rport in SIP signaling (requested and received from the SIP server by the VIA header)

0=don't ask (rtpport request will not be added to the VIA header)

1=use only for symmetric NAT (only when it is sure that the public address will be correct)

2=always (always request and use the returned value except if already on public ip)

3=request even on public IP (meaningless in most cases)

9=request with the signaling, but don't use the returned value (good if you want to keep the local IP)

Change to 0 or 2 only if you have NAT issues (depending on your server type and settings)

(Usually use_rport and use_stun should have the same value set)

Default is 1

use_stun

(int)

Stun request on startup.

-1=force private address (if the client has both private and public IP, then the private IP will be sent in the signaling)

0=no

1=use only for symmetric NAT (recommended)

2=always

3=use even on public IP

Change to 0 or 2 only if you have NAT issues (depending on your server type and settings)

(Usually use_stun and use_rport should have the same value set)

Default is 1

udpconnect

(int)

Specify whether the UDP have to be connected before sending on the socket. (Some server might require udp connect and in this way the webphone can always detect its local address correctly)

0=no

1=on init

2=on first send (not recommended. can block)

3=on both or any (not recommended)

Default value: 0

keepalivetype

(int)

NAT keep-alive packet type.

0=no keep-alive

1=CR (\r\n) (very efficient because low bandwidth and low server usage)

2=NOTIFY (standard method)

Default is 1.

keepaliveival

(int)

NAT keep-alive packet send interval in milliseconds.

Set to 0 to disable.

Default value is 25000. (25 sec)

registerival

(int)

Specify registration interval in **milliseconds**.

*In the signaling the expire interval will be set to $(registerival/1000)*2+10$ but the new re-registrations will be sent at every $registerival/1000$ seconds allowing one registration to be lost from two attempt due to any reason.*

If your server supports keep-alive messages (to prevent NAT binding timeouts), then you might set to a longer interval (~3600 sec) to prevent high CPU usage on your server especially if you have many hundreds of SIP UA running at the same time. If your server doesn't support keep-alive, then you might set this to a lower value (between 30 and 90 sec. 60 sec is a good choice for most NAT devices and routers).

Default is 60000 (60 sec)

changesptoring

(int)

If to treat session progress (183) responses as ringing (180). This is useful because some servers never sends the ringing message, only a session progress and might start to send in-band ringing (or some announcement)

The following values are defined:

0: do nothing,

1: change status to ring

2: start media receive and playback (and media recording if the "sendearlymedia" applet parameter is set to true)

3: change status to ringing and start media receive and playback (and media recording if the "sendearlymedia" applet parameter is set to true)

Default value is 2.

*Note: on ringing status the webphone is able to generate local ringtone. However this locally generated ringtone playback is stopped immediately when media is started to be received from the server (allowing the user to hear the server ringback tone or announcements)

natopenpackets

(int)

Change this option only if you have RTP setup issues with your server(s).

UDP packets to send to open the NAT device and initiate the RTP. Some servers will require at least 5 packets before starting to send the media after the 183 "session in progress" response. In this case set this value to 10 (In this way the server will receive at least 5 packets even on high packet loss networks)

Default is 1

*Note: instead of sending more "fake" packets, you can set the "sendearlymedia" to true to begin the rtp stream immediately.

sendearlymedia

(boolean)

Start to send media when session progress is received

Default is false.

*Note: For the early media to work, the webphone has to open the NAT when SDP is received. This can be done by sending a few fake rtp packets or by starting to send the media immediately when session in progress is received. The first method consume less bandwidth, but it is not supported by some servers.

setfinalcodec

(int)

Some server cannot handle the final codec offer in the ACK message correctly.

In this case you will have to set this setting to 0, otherwise you will have one way audio.

0=never (RFC compliant)

1=auto guess (not send in case of OpenSIPS servers)

2=when multiple codecs are received

3=always reply with the final codec in the ACK message

Default value is 1.

proxyaddress

(string)

Outbound proxy address (Examples: mydomain.com, mydomain.com:5065, 10.20.30.40:5065)

Leave it empty if you don't have a stateless proxy. (Use only the serveraddress parameter)

Default value is empty.

usehttpproxy

(int)

Used only for HTTP tunneling with Mizu VoIP servers.

0: no

1: same as sip proxy (proxyaddress)

2: system default

3: manual (must be set by the httpproxyurl applet parameter –deprecated after version 3.5)

4: auto

Default value is 4.

httpproxyurl -deprecated

(string)

Used only for HTTP tunneling when usehttpproxy is set to 3 or 4.

Set your http proxy address here. Example: 192.168.1.1:8080

Default value is empty.

This feature is removed after version 3.5 because it is not compatible with older JVM and using the browser capabilities offers better proxy handling.

httpserveraddress

(string)

Useful when the transport parameter is set to 4 (auto) to specify the http tunneling gateway address.

Default value is null (address loaded from the “serveraddress” applet parameter)

transport

(int)

Transport protocol.

0=UDP

1=TCP

2=TLS (beta)

3=HTTP tunneling (both signaling and media. Supported only by mizu server or mizu tunnel)

4=Auto (automatic failovering from UDP to HTTP if needed)

Default is 0.

dtmfmode

(int)

DTMF send method

0=disabled

1=sip INFO method

2=RFC2833 in the rtp

3=both INFO and RFC2833

Default is 2.

callforwardonbusy

(String)

Specify a number where calls should be forwarded when the user is already in a call. (Otherwise the new call alert will be displayed for the user or a message will be sent on the js API)

Default is empty.

voicemail

(int)

Subscribe to voicemail notifications (MWI). Accepted values:

0=disabled

1=display voicemail only if NOTIFY is received automatically without subscription

2=auto-detect if voicemail SUBSCRIBE is needed

3=subscribe for voicemail messages after successful registration

4=subscribe for voicemail messages on startup

Default value is 2. Set to 3 if your server has support for MWI to be sure that the webphone will check the voicemail.

voicemailnum

(String)

Specify the voicemail address. Most servers will automatically send the voicemail access number so you don't need to set this parameter.

transfertype

(int)

0=call transfer is disabled

1=transfer immediately and disconnect with the A user when the Transf button is pressed and the number entered (unattended transfer)

2=transfer the call only when the second party is disconnected (attended transfer)

3=transfer the call when the webphone is disconnected from the second party (attended transfer)

4=transfer the call when any party is disconnected except when the original caller was initiated the disconnect (attended transfer)

5=transfer the call when the webphone is disconnected from the second party. Put the caller on hold during the call transfer (standard attended transfer)

Default is 5.

If you have any incompatibility issue, then set to 1 (unattended is the simplest way to transfer a call and all sip server and device should support it correctly)

transfwithreplace

(boolean)

Specify if replace should be used with transfer so the old call (dialog) is not disconnected but just replaced.

Default is false.

discontransfer

(int)

Specify if line should disconnect after transfer

0=no (default)

1=on refer sent
2=on refer received
3=on both
4=all

transferdelay

(int)
Milliseconds to wait before sending REFER/INVITE while in transfer.
Default value is 400.

checksrvrecords

(int)
SRV domain record lookup setting:
0: don't lookup
1: lookup A record first. If fails then lookup srv record (because mostly the srv record is not set anyway)
2: lookup srv record first. If fails then lookup A record (RFC compliant)
3: check also without the _sip_udp. Prefix
If the srv lookup returns multiple records, than the webphone will failover to the next server on connection failures.
Default value is 1.

audiodevicein

(string)
Audio device name for recording (microphone). Set to a valid device name or "Default" which would select the system default audio device.

audiodeviceout

(string)
Audio device name for playback (speaker). Set to a valid device name or "Default" which would select the system default audio device.

audiodevicering

(string)
Audio device name for ringtone. Set to a valid device name or "Default" which would select the system default audio device. You can also set it to "All" to have the ringtone played on all devices.

playring

(int)
Generate ringtone for incoming and outgoing calls.
0=no (you can generate ringtone also by using the JavaScript api to playback a sound file when you receive ringing notifications)
1=play ringtone for incoming calls
2=play ringtone for incoming and outgoing calls. (ringtone for outgoing calls can be generated also by your VoIP sever. When remote ringtone is received, the webphone will stop the local ringtone playback immediately and starts to play the received ringtone or announcement)
Default is 2.

ringtone

(string)
Specify a ringtone sound file to be used. If not specified, then the webphone will use its own built-in ringtone for call alert.
The file should be in the following format: PCM SIGNED 8000.0 Hz (8 kHz) 16 bit mono (2 bytes/frame) in little-endian (128 kbits)
Default value is empty.

volumein

(int)

Default microphone volume in percent from 0 to 100. 0 means muted. 100 means maximum volume, 0 is muted.

Default is 50% (not changed)

Note: The result volume level might be affected by the AGC if it is enabled.

volumeout

(int)

Default speaker volume in percent from 0 to 100. 0 means muted. 100 means maximum volume, 0 is muted.

Default is 50% (not changed)

Note: The result volume level might be affected by the AGC if it is enabled.

volumering

(int)

Default ringback volume in percent from 0 to 100. 0 means muted. 100 means maximum volume, 0 is muted.

Default is 50% (not changed)

agc

(int)

Automatic gain control.

0=Disabled

1=For recording only

2=Both for playback and recording

3=Guess

Default value is 3

This will also change the effect of the volumein and volumeout settings.

For the AGC to work the mediaench module must be also deployed. See the related FAQ section for more details.

stereomode

(boolean)

Set to true for 2 audio channel or false for 1 (mono).

When stereo is set, the webphone will convert also mono sources to stereo output.

Default is false.

plc

(boolean)

Enable/disable packet loss concealment

Default is true (enabled)

aec

(int)

Enable/disable acoustic echo cancellation

0=no,

1=yes except if headset is guessed

2=yes if supported

3=forced yes even if not supported (might result in unexpected errors)

Default is 1

For the AEC to work the mediaench module must be also deployed. See the related FAQ section for more details.

denoise

(int)
Noise suppression.
0=Disabled
1=For recording only
2=Both for playback and recording
3=Guess
Default value is 3

silencesuppress

(int)
Enable/disable silence suppression
Usually not recommended unless your bandwidth is really bad and expensive.
0=no
1=yes
Default is 0 (disabled)

rtcp

(boolean)
Enable/disable rtcp.(RFC 3550)

use_gsm

(int)
GSM codec setting. 0=never,1=don't offer,2=yes with low priority,3=yes with high priority
Default is 1.

use_ilbc

(int)
iLBC codec setting. 0=never,1=don't offer,2=yes with low priority,3=yes with high priority
Default is 1.

use_speex

(int)
Narrowband speex codec setting. 0=never,1=don't offer,2=yes with low priority,3=yes with high priority
Default is 1

use_speexwb

(int)
Wideband speex codec setting. 0=never,1=don't offer,2=yes with low priority,3=yes with high priority
Default is 1

Note: to enable wideband in all circumstances, make sure to set the "disablewbforpstn" and "disablewbbonmac" applet parameters to false.

use_speexuwb

(int)
Ultra wideband speex codec setting. 0=never,1=don't offer,2=yes with low priority,3=yes with high priority
Default is 2

Note: to enable wideband in all circumstances, make sure to set the "disablewbforpstn" and "disablewbbonmac" applet parameters to false.

disablewbbonmac

(boolean)

Whether to disable wideband codec on mac devices.

Mac OS X has a JVM bug which prevents java to reopen the audio devices with different sample rate.

Set this to false only if you are using wideband codec for each calls (so there is no chance that a call have to be handled in narrowband)

Default value is true

disablewbforpstn

(boolean)

This setting will disable speex wideband and ultrawideband for outgoing calls to regular phone numbers since these are usually not supported for pstn calls and they might requires longer initialization.

Default is true

use_g729

(int)

G.729 codec setting. 0=never,1=don't offer,2=yes with low priority,3=yes with high priority

Default is 2

**Enable only if you have g.729 licenses or licenses are not required in your case (consult your lawyer if you are not sure)*

use_pcma

(int)

G711alaw codec. 0=never,1=don't offer,2=yes with low priority,3=yes with high priority

Default is 2

use_pcmu

(int)

G711ulaw codec. 0=never, 1=don't offer, 2=yes with low priority, 3=yes with high priority

Default is 1

codeccodecframecount

(int)

Number of payloads in one UDP packet.

By default it is set to 0 which means 2 frames for G729 and 1 frame for all other codec.

udptos

(int)

Sets traffic class or type-of-service octet in the IP header for packets sent from UDP socket. As the underlying network implementation may ignore this value applications should consider it a hint.

The value must be between 0 and 255.

Valid values:

- 0: disabled
- 1: automatic (set to 10 under normal conditions and disabled when in tunneling)
- 2: low-cost routing
- 4: reliable routing
- 8: throughput optimized routing
- 10: low-delay routing
- or'ing the above values (from above 2)

Default value is 1.

Notes:

for Internet Protocol v4 the value consists of an octet with precedence and TOS fields as detailed in RFC 1349. The TOS field is bitset created by bitwise-or'ing values such the following :

IPTOS_LOWCOST (0x02)

IPTOS_RELIABILITY (0x04)

IPTOS_THROUGHPUT (0x08)

IPTOS_LOWDELAY (0x10)

The last low order bit is always ignored as this corresponds to the MBZ (must be zero) bit.
for Internet Protocol v6 tc is the value that would be placed into the sin6_flowinfo field of the IP header.

automute

(int)
Specify if other lines will be muted on new call
0=no (default)
1=on incoming call
2=on outgoing call
3=on incoming and outgoing calls
4=on other line button click

autohold

(int)
Specify if other lines will be muted on new call
0=no (default)
1=on incoming call
2=on outgoing call
3=on incoming and outgoing calls
4=on other line button click

ackforauthrequest

(int)
If to send ACK for authentication requests (401,407).
0=no
1=yes (default)
Should be changed only if you have compatibility issues with the server used.

favorizecontactaddr

(int)
You may change it if you have compatibility issues with stateless proxies
0=never
1=no
2= conform RFC (default)
3= yes
4=always

prack

(boolean)
Enable 100rel (PRACK)
Set to false if you have incompatibility issues.
Default is false.

sendmac

(boolean)
Will send the client MAC address with all signaling message in the X-MAC header parameter.
Default value is false.

customsipheader

(string)

Set a custom sip header (a line in the SIP signaling) that will be sent with all messages. Can be used for various integration purposes (for example for sending the http session id). You can also change this parameter runtime with the API_SetSIPHeader java script function.

Default value is empty.

techprefix

(string)

Add any prefix for the called numbers.

Default is empty.

rejectonbusy

(boolean)

Set to true to reject all incoming call if there is already a call in progress.

Default value is false.

mustconnect

(boolean)

If set to true, than users must register before to make any calls.

Default value is false.

autoaccept

(boolean)

Set to true to automatically accept all incoming calls (autoanswer).

Default value is false.

ringtimeout

(int)

Maximum ring time allowed in millisecond.

Default is 90000 (90 second)

calltimeout

(int)

Maximum speech time allowed in millisecond.

Default is 10800000 (3 hour)

timer

(int)

You can slow down or speed up the SIP protocol timers with this setting. You may set it to 15 if you have a slow server or slow network.

Default value is 10.

timer2

(int)

Same as “timer” but it affects idle, connect and ring timeout and maximum call durations.

Default value is 10.

mediatimeout

(int)

RTP timeout in seconds to protect again dead sessions.

Calls will be disconnected if no media packet is sent and received for this interval.

Default value is 300 (5 minute)

mediatimeout_notify

(int)

RTP timeout in seconds for js notify.

After this timeout a warning message is sent on the java script interface without any further action.

The following log will be generated: "WARNING,media timeout (notify)"

Default value is 0 (disabled)

rtpkeepaliveival

(int)

RTP stream keep-alive packet send interval in milliseconds.

This is useful if your server has an RTP timeout setting to prevent disconnects when the webphone is hold or muted.

Default value is 0. (You might set it to 25000 for example)

sendrtponmuted

(boolean)

Send rtp even if muted (zeroed packets)

Set to true only if your server is malfunctioning when no RTP is received.

Default value is false.

discmode

(int)

For call disconnect compatibility improvements. Some VoIP devices might have bugs with CANCEL forking, so it is better to always send a BYE after the CANCEL message on call disconnect. In this case set the discmode parameter to 3.

1: quick

2: conform the RFC

3: send BYE after CANCEL when needed

4: double: always repeat the CANCEL and the BYE messages

Default value is 2.

waitforunregister

(int)

Maximum time in milliseconds to wait for unregistration when the API_Unregister is called or the webphone is closed.

If set to 0 that an unregister message is sent (REGISTER with Expires set to 0) but the webphone is not waiting for the response.

Default value is 2000.

waitforclose

(int)

Deprecated by waitforunregister.

Wait for the SIP engine to proper disconnect in miliseconds. By default it is set to 100. You might increase this value to give more time for the webphone on slow PC's to send the proper unregister message when the applet is closed.

Default value is 50.

md5

(string)

Instead of using the password parameter you can pass an MD5 checksum for better protection: MD5(username:realm:password)

(The parameters are separated with the ':' character)

The realm is usually your server domain name or IP address (otherwise it is set on your server)

If you are not sure, you can find out the realm in the "Authenticate" headers sent by your server with the "401 Unauthorized" messages. Example:

WWW-Authenticate: Digest realm="YOURREALM", nonce="xxx", stale=FALSE, algorithm=MD5

Default is empty.

realm

(string)

Can be set together with the md5 applet parameter. You should be able to obtain it from your VoIP server (usually the server domain name)
Default is empty.

encrypted

(boolean)
Specify if the transport will be encrypted (both media and the signaling)
Compatible only with Mizu VoIP servers.
Automatically turned on when using http tunneling.
Default is false.

authtype

(int)
Some server doesn't allow "web" or "proxy" authentication.
0=normal
1=only proxy auth
2=only simple auth

sipusername

(string)
Specify default SIP auth username. Otherwise the "username" parameter will be used for authentication or the username specified by the user.
Default is empty.

displayname

(string)
Specify default display name used in "from" and "contact" headers.
Default is empty (username will be displayed for the peers)

pwdencrypted

(int)
Specify if you will supply encrypted passwords via applet parameters or via the javascript api
0=no (default)
1=xor
2=des+base64
3=xor+base64 (this is the preferred method; easiest but still secure enough)
4= base64
This method is deprecated from version 3.4. All parameters can be passed encrypted now by just prefixing them with the "encrypted__X__" string where X means the id of the encryption method used.

voicerecording

(int)
0=no (default)
1=local (in the user home directory)
2=remote ftp
3=both

voicerecfilename

(int)
The format of the recorded filenames.
0=date-time + peer name (default)
1=date-time + sip call-id
2=sip call-id
The date-time will be formatted in the following way: yyyyMMddhhmmss

voicerecftp_addr

(string)

FTP location for the recorded voice files if the “voicerecording” parameter is set to 2 or 3.

Format: <ftp://USER:PASS@HOST:PORT/PATH/TO/THEFILE>

Example: <ftp://user01:pass1234@ftp.foo.com/FILENAME>

The FILENAME part of the string will be replaced with the file name according to the “voicerecfilename” parameter.

voicerecformat

(int)

Recorded file compression.

0=PCM wave stereo files with separate channels for in/our (default)

1=raw gsm. 2 files will be generated for each call. One for the recorder file and another for the playback. These files can be played with players supporting gsm codecs for example [quicktime](#) (which works also as a browser plugin) or a winamp plugin is downloadable from [here](#).

voicerecordingbuff

(int)

The maximum recorded file length.

-1: dynamic

1: around 1 minute

2: around 2 minute

...

Default is 4.

autocfgsave

(int)

Sometime is useful to not allow configuration storage on the user device (username,password,etc)

0=disable config storage

1=save only

2=load only

3=save and load (default)

signalingport

(int)

Specify local SIP signaling port to use

Default is 0 (random)

rtpport

(int)

Specify local RTP port base

Default is 0 (random)

localip

(String)

Specify local IP address to be used.

This should be used only on devices with multiple ethernet interface to force the specified IP.

Default is empty (autodetect)

jittersize

(int)

Although the jitter size is calculated dynamically, you can modify its behavior with this setting.

0=no jitter,1=extra small,2=small,3=normal,4=big,5=extra big,6=max

Default is 3

maxjitterpackets

(int)

You can limit the jitter buffer size with this setting.

With the jittersize left as default (3) the maximum buffered packet count is limited to 8, so you might set this parameter to a lower value.

One packet means a received udp packet which might contain one or more audio frame.

For example when using G.729 the typical media stream are with 2 frames/packet. Each frame is 10 msec length.

A jitter limitation of 5 would mean maximum 100 msec to be cached. (while the default setting would allow 8 packet which means 160 msec)

Default value is 99 (no limitation)

loglevel

(int)

Tracing level. Values from 0 to 6.

If you set it to more than 3, then a log window will appear and also will write the logs to a file (if file write permissions are enabled on the client side).

With level 0, the applet will not even display important even notifications for the user. Don't use this level if possible.

Loglevel 4 means a full log including SIP signaling. Loglevel 5 or 6 should be avoided (this can slow down the applet)

Increased log levels has big impact on performance and usability. Use it only for short tests.

Text logs are sent to the following outputs:

- status display (only level 1 –these are the most important events that needs to be displayed also for the user)
- log window if loglevel is higher than 3
- file if loglevel is higher than 3 (webphonelog.dat in the java user home directory which depends on the OS/java/browser used)
- java console (if the logtoconsole applet parameter is set to true)

Default is 1.

increasepriority

(boolean)

This will increase the priority for the whole thread-group which might help on slow CPU's or when another applications are generating high CPU load.

Note: the priority of the threads handling media are increased regardless of this setting.

Default is false.

logtoconsole

(boolean)

Whether to send tracing to the java console.

Default is false.

capabilityrequest

(boolean)

If set to true then will send a capability request (OPTIONS) message to the SIP server on startup. The serveraddress applet parameter must be set correctly for this to work. This method is useful to release the security restrictions when using the applet with the java script API and also to open the NAT devices.

Default value is false.

natkeepalive

(boolean)

If set to true then will send a short message (\r\n) to the SIP server on startup. The serveraddress applet parameter must be set correctly for this to work. This method is useful to release the security restrictions when using the applet with the java script API and also to open the NAT devices.

Deprecated since v.3.8.2

Default value is false.

recaudiobuffers

(int)

Number of buffers used for audio recording.

Default is 7.

recaudiomode

(int)

Audio recording mode. 0 means default; 1 means event based; 2 means device poll.

Default is 0.

useencryption

(boolean)

Set to true for encrypted communication (both media and signaling)

Works only with mizu servers.

maxlines

(int)

Maximum port number from 1 to 4. When set to 1, multiline functionality will be disabled.

If you would like to reject all incoming calls if the webphone is already in a call, then use the “rejectonbusy” applet parameter instead of setting the maxlines to 1.

Default value is 4.

httpsessiontimeout

(int)

Maximum session time in minutes

Used when the webphone is controlled from java script to avoid situations when the java applet is still running but the user http session is already expired.

You must call the API_register periodically (for example in every 20 minute) to avoid the timer expiry.

Default value is 60 minute.

hasgui

(boolean)

Set to false if you are not using the java user interface. (When a custom html/js/css or other skin is used)

Default is true.

webphonetojs

(String)

Java script function to be called for the notifications.

Default value is “webphonetojs”

jsscriptevent

(int)

If you have a java script function called webphonetojs, you can get notifications about webphone status, line status, events and cdr record.

0=no notifications,1=status and cdr,2=events,3= all logs including SIP signaling messages (depending also on loglevel).

Default is 1.

jsscripstats

(int)

Set to a value in seconds if you wish to receive extended periodic statistics for each line (STATUS notifications).

Default is 0 (no periodic statistics)

jsfunctionpath

(string)

If your webphonetojs is embedded in other html elements, then you can give the path here. Example: document,externform,innerform2.

By default it is an empty string. This means that the webphonetojs must be placed on the top level (after <body> for example)

Applet parameter security

General considerations

The following methods can be used to secure the webphone usage:

- don't hardcode the password if possible (let the users to enter it) or if you must hardcode it then use encryption
- restrict the account on the VoIP server (for example if the webphone is used as a support access, then allow to call only your support numbers)
- always pass the password parameter encrypted if you have to
- instead of password, use the MD5 and the realm parameters if possible (and this can also be passed in encrypted format for the highest security)
- instead of applet parameters you can also use the javascript api (API_Register)

Applet parameter encryption

You just have to prefix them like:

encrypted__X__encryptedvalue where X means the id of the encryption method used:

- 1: simple xor (Each webphone has its unique key. Ask your key from Mizutech support)
- 2: des (most secure but more difficult to implement)
- 3: xor+base64 (this is the preferred method; easy to use and secure enough)
- 4: base64 (unsecured)

Example: `<param name = "password" value = "encrypted__3__d3691adb28b5591">`

You can also use the applet to make the encryption for your parameters. For this, launch the applet with "loglevel" set to 4.

An "encrypt" button will appear on the bottom of the screen.

The same format can be used to encrypt the string parameters for the API function calls.

You should restrict the webphone account (usage, routing) from your VoIP server to make the webphone more secure.

Parameter encryption explained

The simplest encryption method is the XOR encryption.

Each webphone has a unique key.

For the current key demo version it is "h39idbfqw7116ghh".

To encrypt any string, you have to XOR it with this key byte by byte.

First char with 'h'

Second char with '3'.

Third char with '9'

etc

To verify your work:

Set the "loglevel" applet parameter to 5.

An "encrypt" button will appear which will use the built-in encryption so you can use to encrypt any string with it or to verify your code used to generate the encrypted strings.

To pass a xor encrypted parameter you just have to prefix it with "encrypted_1_".

For example instead of using

```
<param name = "username" value = "4444">
```

You can write the following:

```
<param name = "username" value = "encrypted_1_XORENCRYPTEDUSERNAME">
```

The same string format are also accepted on the java script api for the string function parameters.

XOR encryption should be used together with base64 encoding. In this case the encrypted_1_ prefix have to be changed to encrypted_3_

When using base64, first apply the xor, and base64 for the XORED bytes.

PHP example for base64+xor encryption

These examples are written in Java but you should be able to find similar functionalities in your preferred language be it JavaScript, PHP, J2EE, .NET or any other programming environment.

```
encrypted__3__<? print base64_encode(stringtoencrypt ^ key); ?>
```

Java example for XOR encryption

These examples are written in Java but you should be able to find similar functionalities in your preferred language be it JavaScript, PHP, J2EE, .NET or any other programming environment.

```
public static String strxor(String str, String key) {
    try {
        String result = null;
        byte[] strBuf = str.getBytes();
        byte[] keyBuf = key.getBytes();
        int c = 0;
        int z = keyBuf.length;
        ByteArrayOutputStream baos = new ByteArrayOutputStream(strBuf.length);
        for (int i = 0; i < strBuf.length; i++) {
            byte bS = strBuf[i];
            byte bK = keyBuf[c];
            byte bO = (byte)(bS ^ bK);
            if (c < z - 1) {
                c++;
            } else {
                c = 0;
            }
            baos.write(bO);
        }

        baos.flush();
        result = baos.toString();
        baos.close();
        baos = null;
        return result;
    } catch (Exception e) { Common.PutToDebugLogException(3,"xor",e); }
    return str;
}
```

Java example for DES encryption

```
import javax.crypto.*;
import javax.crypto.spec.*;
import java.security.spec.*;

public class DesEncrypter {
    Cipher ecipher;
    Cipher dcipher;
    String passPhrase = "XXX"; //get from Mizutech
    int iterationCount = 3;
    // 8-bytes Salt
    byte[] salt = {
        (byte)0xA9, (byte)0x9B, (byte)0xC8, (byte)0x32,
        (byte)0x56, (byte)0x34, (byte)0xE3, (byte)0x03
    };

    DesEncrypter()
    {
        try{
            KeySpec keySpec = new PBEKeySpec(passPhrase.toCharArray(), salt, iterationCount);
            SecretKey key = SecretKeyFactory.getInstance("PBEWithMD5AndDES").generateSecret(keySpec);

            ecipher = Cipher.getInstance(key.getAlgorithm());
            dcipher = Cipher.getInstance(key.getAlgorithm());

            AlgorithmParameterSpec paramSpec = new PBEPParameterSpec(salt,iterationCount);
            ecipher.init(Cipher.ENCRYPT_MODE, key, paramSpec);
            dcipher.init(Cipher.DECRYPT_MODE, key, paramSpec);
        }
    }
}
```

```

    } catch (Exception e) { Common.PutToDebugLogException("des ctor",e); }
}

public String encrypt(String str) {
    try {
        // Encode the string into bytes using utf-8
        byte[] utf8 = str.getBytes("UTF8");

        // Encrypt
        byte[] enc = ecipher.doFinal(utf8);

        // Encode bytes to base64 to get a string
        return new sun.misc.BASE64Encoder().encode(enc);
    } catch (Exception e) { Common.PutToDebugLogException("des encrypt",e); }
    return str;
}

public String decrypt(String str) {
    try {
        // Decode base64 to get bytes
        byte[] dec = new sun.misc.BASE64Decoder().decodeBuffer(str);

        // Decrypt
        byte[] utf8 = dcipher.doFinal(dec);

        // Decode using utf-8
        return new String(utf8, "UTF8");
    } catch (Exception e) { Common.PutToDebugLogException("des decrypt",e); }
    return str;
}
}

```

JavaScript API

The webphone has an easy to use API and can be easily controlled by external javascript function calls.

You can completely hide the webphone (or run it in compact mode) and present your custom design created with html, css, flash or with any other tool.

The syntax is very simple:

```
document.applets[0].functionname();
```

Example:

```

<SCRIPT LANGUAGE="javascript">
function webphonetojs(message)
{
    //this is an optional function if you would like to be notified about webphone events
    //this function will be called by the applet
    //you will have to parse the message and act accordingly
    alert(message);
}

function do_something()
{
    document.applets[0].functionname();
}
</SCRIPT>

```

```
<input type=button value='applet action' onClick='do_something()'
```

Or you might use the following format:

```
document.getElementById('webphone').getSubApplet().method(params);
document.getElementById('webphone').method(params);
```

Notifications (status updates, events, etc) from the webphone is wired to your javascript function named “webphonetojs”.

For a working example please check the “Toolkit_with_JS.htm” that you should find in the demo package.

There are more than 100 public functions in the webphone, but you usually need only the functions prefixed with API_ and documented below:

Public Functions

Most of the functions **return a boolean** value. True when the call has been executed successfully, otherwise false.

Some of the functions are executed asynchronously. This means that it can return a true value immediately and fail later. For example for API_Call the return value means only that the call was initiated successfully. At this point we don't know if the call will be successful (connected) or not. You can get the call status by parsing the messages received by the function named "webphonetojs" or you can periodically poll the webphone status with the API_GetStatus function.

The **line** parameter can mean the channel used. The following values are defined:

- -2: all channels
- -1: the current channel set previously by API_SetLine or by other functions. Usually this will mean the first channel (1)
- 0 : undefined
- 1: first channel
- 2 : second channel
- etc (you can control the max number of the channels with the maxlines applet parameter which is set to 4 by default)

Most commonly you will have to pass always -1 as the channel number. You will have to use other values only if you will present a GUI where the user can select different lines. Otherwise the webphone can do this automatically allocating new channels when needed.

Function string parameters can be passed in encrypted format. (Read the FAQ for more details regarding the encrypted parameters)

boolean API_ServerInit(String address) -deprecated

Call this function before to start any communication with this address (usually an IP number). This is required to release the Java security restrictions. Wait 1-2 second before calling the next function like API_Register or API_Call. This function is deprecated since v.3.8 (no need to call this, just call API_Register or others directly)

boolean API_HTTPKeepAlive()

You must call this function periodically more frequently than the timeout specified by the "httpsessiontimeout" applet parameter. (For example call this in every 5 minute)

This is to prevent orphaned webphone instances (when your html page was closed or crashed but the webphone is still running in the background). If you don't wish to call this function periodically, then you should set the "httpsessiontimeout" applet parameter to 0.

boolean API_SetParameter(String param, String value)

Most of the applet parameters can be set with this function except applet gui parameters (like the colors). Some parameters can take effect only when the applet is reinitialized.

This function should be used only in special cases. You should be able to control the applet without to use this function

boolean API_SetCredentials(String server, String username, String password, String authname, String displayname)

Will set the server address (ip:port or domain:port) the SIP username and the password. These values can also be preset by applet parameters.

Parameters with empty strings will be omitted. For example if you would like to change only the username and the password, you can write API_SetCredentials("", "newusername", "newpassword")

If authname is empty, then the username will be used for authentications. The displayname is usually empty (no special displayname will be presented for peers). If other parameters are empty, then they can be specified by user input (If the applet has a visible user interface).

boolean API_SetCredentialsMD5(String server, String username, String md5, String realm)

Instead of passing the password directly you can use MD5 checksum.

In this case the md5 parameter must be the md5 checksum for username:realm:password

The realm parameter is optional (can be set as an empty string) but it is recommended for easy error detection. If present and the server realm don't match with this one, an error message will be displayed by the webphone.

boolean API_Register(String server, String username, String password, String authname, String displayname)

Will connect to the SIP server. This can be also done automatically by applet parameter ("register"). Need to be called only once (subsequent reregistrations are done automatically. When called subsequently, than the old registrar endpoint is deleted, a new one will be created with a new call-id and the webphone will reregister). Parameters can be empty strings if you already supplied them by applet parameters or by the API_SetCredentials call.

If you already passed the server, username and password (or md5) parameters with the `API_SetCredentials` functions, then you can call this function with empty parameters: `API_Register("", "", "", "", "");`

boolean API_Unregister()

Will stop all endpoints (hangup current calls if any and unregister)

boolean API_CheckVoicemail(int line)

Will (re)subscribe for voicemail notifications. No need to call this function if the “voicemail” applet parameter is set to 2. The line parameter should be set to -1.

boolean API_CapabilityRequest(String server, String username)

Will send a `OPTION` request to the server. Usually you should not use this function.
The server parameter can be empty if you already set it with other API calls or by applet parameter.
The username parameter can be empty (in this case the “From” address will be set to “unknown”)

boolean API_SetSIPHeader(String hdr)

Set a custom sip header (a line in the SIP signaling) that will be sent with all messages. Can be used for various integration purposes (for example for sending the http session id). You can also set this with applet parameter (customsipheader).

boolean API_SendSIP(String msg)

Will send a custom SIP signaling message (for example `OPTIONS`, `NOTIFY`, etc). The message will be sent within 1-3 seconds after the function call is completed.

boolean API_SetLine(int line)

Will set the current channel. (Use only if you present line selection for the users. Otherwise you don’t have to take care about the lines).
Note: Instead of using each API call with the line parameter, you can just use this function when you wish to change the active line and use all the other API calls with -1 for the line parameter.

boolean API_GetLine(int line)

Will return the current active line. This should be the line which you have set previously except after incoming and outgoing calls (the webphone will automatically switch the active line to a new free line for these if the current active line is already occupied by a call)

boolean API_Call(int line, String peer)

Initiate call to a number or sip username.
If the peer parameter is empty, then will redial the last number.

boolean API_Hangup(int line)

Disconnect current call(s). If you set -2 for the line parameter, then all calls will be disconnected (in case if there are multiple calls in progress)

boolean API_Accept(int line)

Connect incoming call.

boolean API_Reject(int line)

Disconnect incoming call.

boolean API_Forward(int line, String peer)

Forward incoming call to peer (with 302 Moved Temporarily disconnect code)

boolean API_Transfer(int line, String peer)

Transfer current call to peer which is usually a phone number or a SIP username. (Will use the REFER method after SIP standards)

boolean API_TransferDialog()

Instead of calling the API_Transfer function and pass a number, with this function you can let the webphone to ask the C number from the user.

boolean API_MuteEx(int line, boolean mute, int what)

Mute current call.

- 0: mute in and out
- 1: mute in (microphone)
- 2: mute out (speakers)

boolean API_Hold(int line, boolean hold)

Hold current call. This will issue an UPDATE or a reINVITE.

Set the second parameter to true for hold and false to reload.

boolean API_HoldChange(int line)

Same as API_Hold, but without the second parameter. This call will always invert the hold status for an endpoint (If the call was active, then it will switch to held status and if the call was in hold, then it will reactivate it).

boolean API_Conf(String peer)

Add people to conference.

If peer is empty than will mix the currently running calls (if there is more than one call)

Otherwise it will call the new peer (usually a phone number or a SIP user name) and once connected will join with the current session.

boolean API_Dtmf(int line, String dtmf)

Send DTMF message by SIP INFO or RFC2833 method (depending on the “dtmfmode” applet parameter). Please note that the dtmf parameter is a string. This means that multiple dtmf characters can be passed at once and the webphone will streamline them properly. Use the space char to insert delays between the digits. The dtmf messages are sent with the protocol specified with the “dtmfmode” applet parameter.

Example: API_Dtmf(-2, “ 12 345 #”);

boolean API_SendChat(int line, String peer, String message)

Send a chat message. (SIP MESSAGE method after RFC 3428)

Peer can be a phone number or SIP username/extension number.

boolean API_Chat(String peer)

Instead of calling the API_SendChat function and pass a message, with this function you can let the webphone to open its chat form.

Will open the chat form (the “number” parameter can be empty)

Peer can be a SIP username or extension number.

boolean API_VoiceRecord(int startstop, int now, String filename)

Will start/stop a voice recording session.

- Startstop: 0 to stop, 1 to start locally, 2 to start remote ftp, 3 start to record both locally and to remote ftp
- Now: used if the startstop is set to 0. 0 means that the recorded file will be saved and/or uploaded at the end of the conversation only. 2 means that the file will be saved immediately
- Filename: file name used for storing the recorded voice (if empty string, than will use a default file name)

This function should be used only if you would like to control the recording duration.

If all conversations have to be recorded, then just set the “voicerecording” applet parameter after your needs.

The last recorded call can be played by calling the API_PlaySound with the file set to “lastvoicerecord”.

boolean API_PlaySound(int start, String file, int looping, boolean async, boolean islocal, boolean toremotepeer, int line, String audiodevice, boolean isring)

Play any sound file.

At least wave files are supported in the following format:

PCM SIGNED 8000.0 Hz (8 kHz) 16 bit mono (2 bytes/frame) in little-endian (128 kbits)

The file must be found near the webphone.jar.

- start: 1 for start or 0 to stop the playback, -1 to pre-cache
- file: file name
- looping: 1 to repeat, 0 to play once
- async: false if no, true if playback should be done in a separate thread
- islocal: true if the file have to be read from the client PC file system. False if remote file (for example if the file is on the webserver)
- toremotepeer: stream the playback to the connected peer
- line: used with toremotepeer if there are multiple calls in progress to specify the call (usually set to -1 for the current call if any)
- audiodevice: you can specify an exact device for playback. Otherwise set it to empty string
- isring: wheter this sound is a ringtone/ringback

Examples:

-playback a file locally (mysound.wav must exist on your webserver near the webphone.jar file):

`API_PlaySound(1, "mysound.wav", 0, false, false,false, -1)`

-playback a file to the connected remote peer (mysound.wav must exist on your webserver near the webphone.jar file):

`API_PlaySound(1, "mysound.wav", 0, false, false,true, -1)`

-stop the playback:

`API_PlaySound(0, "", 0, false, false,false, -1)`

boolean API_AudioDevice()

Open audio device selector.

string API_GetAudioDeviceList(int dev)

Will return the list of audio devices separated by \r\n.

Set the dev parameter to 0 to list the recording device names. Set to 1 for to get the playback or ringer devices.

Note: usually you don't need to use this function. Just call the "API_AudioDevice" to let the users to change their audio settings.

boolean API_SetAudioDevice(int dev, string devicename,int immediate)

Select an audio device. The devicename should be a valid audio device name (you can list them with the API_GetAudioDeviceList call)

The "immediate" parameter can have the following values:

-0: default (after the "changeaudiodevimmmediate" applet parameter)

-1: next call only

-2: immediately for active calls

Set the dev to 0 to select the recording device. Set to 1 to select the playback device. Set to 2 to set the ringer device. For the ringer device you can also pass the "All" string as the devicename to make the webphone to ring on all devices for incoming calls. All devices can also accept the "Default" devicename which will select the system default audio device.

Note: usually you don't need to use this function. Just call the "API_AudioDevice" to let the users to change their audio settings.

boolean API_SetVolume(int dev,int volume)

Set volume (0-100%) for the selected device.

The dev parameter can have the following values:

-0 for the recording (microphone) audio device

-1 for the playback (speaker) audio device

-2 for the ringback (speaker) audio device

boolean API_ShowLog()

Show a new window with logs.

boolean API_Exit()

Will stop all endpoints and terminates the webphone. This function call is optional when you unload the applet or wish to issue a forced termination. Use the `API_ExitEx()` to also terminate the Java VM (The applet handle will be invalid after this call. This might cause crashes in some browsers. The usage of this function is not recommended)

string API_GetVersion()

Return the program version number.

string API_GetStatus(int line, int strict)

Returns line status or global status if you pass -2 as line parameter. The possible returned texts are the same like for notifications (listed below).

If the strict variable is set to 1, then it will return “Unknown” if no such line is activated. If the strict variable is set to 0, then it will return the default active line if the line doesn’t exists.

You should use the notifications described below to get the actual status of the webphone instead of continuously polling it with this function call.

JavaScript Notifications

To receive notifications and events from the webphone you have to create a java script function called **webphonetojs** that takes one string parameter. The webphonetojs function must be placed in the same html page and same DOM level. If you place it elsewhere, then you must use the jsfunctionpath applet parameter to specify.

The webphone will call this functions when something happens –according to the “jsscripevent” applet parameter (status change, error message, call finished, etc) passing the messages as the function parameter. (If your webphonetojs function is embedded in other html elements, then you can give the path by using the jsfunctionpath applet parameter)

From the java script code you usually will have to parse the received string. The parameters are separated by comma ‘,’. First you have to check the first parameter (until the first comma) to determine the event type. Then you have to check for the other parameters according to the specification below.

The following messages are defined:

STATUS,line,statustext,peername,localname,endpointtype

Where line can be -1 for general status or a positive value for the different lines.

General status means the status for the “best” endpoint.

This means that you will usually see the same status twice (or more). Once for general webphone status and once for line status.

For example you can receive the following two messages consecutively:

STATUS,1,Connected,peername,localname,endpointtype,peerdisplayname

STATUS,-1,Connected

You might decide to parse only general status messages (where the line is -1).

The following **statustext** values are defined **for general status (line set to -1)**:

Ready
Register...
Registering...
Register Failed
Registered
Accept
Starting Call
Call
Call Initiated
Calling...
Ringing...
Incoming...
In Call (xxx sec)
Hangup
Call Finished
Chat

The following **statustext** values are defined **for individual lines** (line set to a positive value representing the channel number):

Unknown
Init
Ready
Outband
Register
Subscribe
Chat
Setup
InProgress
Routed
Ringing
InCall

Muted
Hold
Speaking
Midcall
Finishing
Finished
Deletable
Error

You will usually have to display the call status for the user, and when a call arrives you might have to display an accept/reject button.

Peername is the other party username (if any)

Localname is the local user name (or username).

Endpointtype is 1 from client endpoints and 2 from server endpoints.

Peerdisplayname is the other party display name if any

For example the following status means that there is an incoming call ringing from 2222 on the first line:

STATUS,1,Ringing,2222,1111,2,Katie

The following status means an outgoing call in progress to 2222 on the second line:

STATUS,2,Speaking,2222,1111,1

To display the "global" phone status, you will have to do the followings:

1. Parse the received string (parameters separated by comma)
2. If the first parameter is "STATUS" then continue
3. Check the second parameter. If "-1" continue otherwise nothing to do
4. Display the third parameter (Set the caption of a custom html control)
5. Depending on the status, you might need to do some other action. For example display your "Hangup" button if the status is between "Setup" and "Finishing" or popup a new window on "Ringing" status if the endpointtype is "2" (for incoming calls only; not for outgoing)

If the "jscriptstats" is on (set to a value higher than 0) then you will receive extended status messages containing also media parameters:

STATUS,1,Connected,peername,localname,endpointtype,peerdisplayname,rtpent,rtprec,rtploss,rtplosspercet,serverstats_if_received

CHAT,line,peername,text

This notification is received for incoming chat messages.

Line: used phone line
Peername: username of the sender
Text: the chat message body

CDR,line, peername,caller, called,peeraddress,connecttime,duration,discparty

After each call, you will receive a CDR (call detail record) with the following parameters:

Line: used phone line
Peername: other party username, phone number or SIP URI
Caller: the caller party name (our username in case when we are initiated the call, otherwise the remote username, displayname, phone number or URI)
Called: called party name (our username in case when we are receiving the call, otherwise the remote username, phone number or URI)
Peeraddress: other endpoint address (usually the VoIP server IP or domain name)
Connecttime: milliseconds elapsed between call initiation and call connect
Duration: milliseconds elapsed between call connect and hangup (0 for not connected calls. Divide by 1000 to obtain seconds.)
Discparty: the party which was initiated the disconnect: 0=not set, 1=webphone, 2=peer, 3=undefined

EVENT,TYPE,txt

Txt can be any important message or error message text. The TYPE parameter is usually "EVENT", "WARNING" or "ERROR", "CREDIT", "RATING", "MWI". This is followed with the message text.

"EVENT", "WARNING" and "ERROR" messages will be received only if you set the "javascriptevents" applet parameter to 2. (by default is set to 1)

"CREDIT" messages are received with the user balance status if the server is sending such messages.

"RATING" messages are received on call setup with the current call cost (tariff) if the server is sending such messages.

"MWI" messages are received on new voicemail notifications if you have enabled voicemail and there are pending new messages

Set the javascriptevents applet parameter to 3 to receive all messages (you might also increase the loglevel applet parameter in this case)

Please check the **JSAPI.htm** source for a working demo.

JavaScript API usage

With the java script API you can implement a VoIP application on your website. You might choose to do some actions in the background, present a single “call” or callback button (with presence?) or to display a phone interface. The most important steps are the followings:

1. write a function named “webphonetojs” to catch all messages from the applet. Regarding the incoming messages you can display the status of the phone (registered,ringing,in-call,etc), the most important events and alert the user about incoming calls or chat messages.
2. load the applet with the webpage using the applet tags or with the “toolkit” method
3. get a handle for the applet
4. call the API_Register automatically or when the user click on the “Connect” button (or similar)
5. call the API_Call function when the user clicks on your “Call” or “Dial” button
6. popup a window (or enable an “accept” button) when you receive notifications about incoming calls to your “webphonetojs” function. Then call API_Accept or API_Reject according the user action
7. if you will present a dial pad for the users, call the API_Dtmf function whenever the user presses a button
8. you might put additional buttons or other controls on your interface for the following functions: audio settings, logout, hold, mute, redial, transfer and conference.

Example call-flow

```
API_ServerInit("11.12.13.14"); //remove java security restrictions –this can be skipped from version 3.6
API_Register("11.12.13.14", "username", "xxxx"); //connect to the server
API_Call(-1, "+363012345678"); //make a new call
//wait for connect message by checking the message received on the webphonetojs function
//notify the user when the call is ringing or connected
API_Mute(-2,true,0); //called when the user press a button
API_Mute(-2,false,0); //reenable audio when the user press a button
API_Hangup(-2); //disconnect all calls
...call the API_HTTPKeepAlive in every 5 minute to avoid session timeout (defined by the httpsessiontimeout applet parameter)
```

Examples

In our demo package you should find several HTML examples for the webphone deployment. You can try them by just opening them from your local PC (make sure to copy the webphone.jar near the html file you wish to open).

VoIP server providers webpage

Applet tag placed on VoIP server providers’ webpage, allowing their customers to make VOIP calls directly from the browser:

```
<applet
archive = "webphone.jar"
codebase = " "
code = "webphone.webphone.class"
name = "webphone"
width = "300"
height = "330"
hspace = "0"
vspace = "0"
align = "middle"
>
<param name = "serveraddress" value = "sipserverdomain.com">
<b>Java is currently not installed or not enabled.</b>
</applet>
```

If the user is already logged in on your webpage, then you can make the applet more user-friendly by not asking for their username and password again. In this case you should generate the html page with the “username” and “password” parameters prefilled (This can be done from your server side scripting, for example from PHP or .NET)

VOIP enabled forums

On your pages where you display the forum posts, near the nicknames you can display a small picture representing the online/offline/busy status of the actual user (presence status). The status of the user can be queried from your SIP server. If you use Mizu Softswitch, you have to initiate the v_userstatus ‘username’ SQL query to the database to know the status of the actual user.

If the agent is online, the button must be clickable and load a different page, iframe, div-ajax, object, frame, flash, javascript:NewWindow or whatever will launch the java applet.

```
<applet
  archive = "webphone.jar"
  codebase = "."
  code    = "webphone.webphone.class"
  name    = "webphone"
  width   = "240"
  height  = "50"
  hspace  = "0"
  vspace  = "0"
  align   = "middle"
>
<param name = "compact" value = "true">
<param name = "call" value = "true">
<param name = "serveraddress" value = "yourdomain.com">
<param name = "username" value = "loggedin_user_username">
<param name = "password" value = "loggedin_user_password">
<param name = "callto" value = "called_user_name">

<b>Display error here or offer java runtime download b</b>
</applet>
```

The serveraddress, username, password and callto must be generated properly from your server side scripting language (PHP, .NET or any other)

Workaround, when the browser doesn't have java enabled

By using the Deployment Toolkit the java VM is automatically downloaded or upgraded if required.

If you are using the old “applet” or “object” methods you should direct the user to download the java runtime or present alternative methods to call. Example:

```
<applet
  archive = "webphone.jar"
  codebase = "."
  code    = "webphone.webphone.class"
  name    = "webphone"
  width   = "240"
  height  = "50"
  hspace  = "0"
  vspace  = "0"
  align   = "middle"
>
<param name = "compact" value = "true">
<param name = "call" value = "true">
<param name = "serveraddress" value = "yourdomain.com">
<param name = "username" value = "loggedin_user_username">
<param name = "password" value = "loggedin_user_password">
<param name = "callto" value = "called_user_name">
<p>
If you don't have Java installed you can install from <b>
<a href="http://www.java.com/en/download/index.jsp">here</a></b>.<br>
You must allow this applet to access your computer (Accept the certificate,
Click on allow blocked content on IE).<br>
Otherwise it cannot access you microphone and cannot initiate phone calls.<br>
If Java doesn't work for you, then click <b>
<a href="sip:// called_user_name@yourdomain.com">here</a></b> to start a call from
your desktop soft phone application.<br>
If you don't have a softphone you can download a free one from <b>
<a href="http://www.mizu-voip.com/Download.aspx">here</a></b></p>
</applet>
```

Detect java runtime with java-script:

```
<HTML>
<HEAD>
<SCRIPT LANGUAGE="JavaScript">

onError = errHandler; // Without he parentheses, because we don't want IE to do this. Like this, only NS does.

function appLoaded() {
  if (!document.applets[0].isActive)
    alert("IE: Applet could not be loaded");
}

function errHandler() {
```

```

alert("NS: Applet could not be loaded");
consume();
}

</SCRIPT>
</HEAD>

<BODY onLoad = appLoaded();>
<applet code="webphone.class" archive="webphone.jar" height="50" width="240">
<param name=" webphone" value="/etc/inet/hosts">

</applet>
</BODY>
</HTML>

```

New and preferred method since version 3.5: Use the “toolkit” deployment method. That will automatically detect if java is not installed on the user browser and will attempt to install it automatically.

Version history

Version 1.0

- initial stable release (RFC 3261 and 2543, PCMU, PCMA)

Version 1.2

- new: DTMF with INFO
- new: speex codec
- new: IM (chat) with MESSAGE method
- new: basic presence
- fix: sip signaling message handler

Version 1.4

- new: quick STUN
- new: rtport handling
- new: GSM codec
- new: outbound proxy
- new: applet parameters: signalingport, rtpport, register interval
- fix: registration and call timeouts
- fix: authentication sent with all request
- fix: sip stack initialization on Vista
- fix: sip message parser
- improvement: jitter buffer
- improvement: thread priority optimizations

Version 1.8

- new: mute, transfer, redial
- improvement: handling record route
- improvement: rtp packet replay to all request -open NAT
- fix: via branch and to tag was kept persistent across dialogs
- fix: save setting not worked since version 1.6
- fix: redial
- improvement: opening NAT at call begins by sending UDP packets to possible destinations
- improvement: jitter buffer fine-tune and configuration possibilities
- improvement: receiving early media (like ringtones and announcements)

Version 2.0

- new: multiple lines (up to 4)
- new: select audio device
- new: volume controls
- improvement: attended transfer
- improvement: extended authentication options (qop, auth-int)
- fix: call transfer Refer-to URI brackets
- fix: auto dial and register

-fix: handling ACK for 200 OK

Version 2.2

- new: call hold option
- new: default volume applet parameters
- new: java to javascript API
- new: javascript to java API

Version 2.3

- new: ringtone for incoming and outgoing calls
- improvement: ability to enable/disable/set priority for g711 codec's
- fix: hold and mute sometimes disabled
- fix: register endpoint timeout
- fix: cdr records not sent to javascript

Version 2.4

- new: more options to enable/disable certain functions
- improvement: call transfer compatibility
- improvement: better handle reinvite requests
- fix: microphone control change bug

Version 2.5

- improvement: multiline status management
- improvement: call hold and call transfer
- improvement: changed some default GUI settings
- fix: some incoming calls was dropped because wrong cseq initialization

Version 2.6

- fix: ring not stopping on call reject/hangup
- fix: call transfer sends wrong refer-to URI
- fix: display registered status when not registered
- improvement: new discontransfer applet parameter

Version 2.7

- fix: route/record-route handling in transfer, hold and disconnect
- fix: cseq sometime is not increased for subsequent register requests
- improvement: OpenSIPS compatibility
- improvement: new color parameters
- new: authorization name and display name parameters

Version 3.0

- new: g.729 codec
- new: wideband and ultra-wideband codec
- auto convert mono to stereo sound
- improvement: better audio device handling (try to open all existing device on failure)
- fix: some SIP messages don't contain the URI in message header

Version 3.2

- new: accept header
- new: API_MuteEx function
- new: jnlp documentation and examples
- improvement: allow header now list all supported methods
- improvement: remaining credit display timings
- improvement: display sent dtmf digits
- improvement: support for multiple instances
- fix: sdp body is missing from INFO messages sending DTMF
- fix: removed static variables to improve multithread stability

Version 3.3

- new: deployment toolkit example
- improvement: js and jnlp now accept jre 1.4
- fix: compatibility fix for jre 1.4

Version 3.4

- new: http tunneling
- new: DTMF RFC2833
- new: Toolkit_with_JS.htm deployment example
- new: easy encryption for all applet and java function string parameters
- new: API_SetParameter function
- new: code frame count setting
- improvement: possibility to pass MD5 instead of password
- improvement: js and jnlp now accept jre 1.4
- fix: API_SendDtmf was not able to send more than one DTMF digit at once
- fix: STUN sets external IP even on wrong conditions

Version 3.5

- new: http tunneling using browser http send/receive capabilities to automatically bypass http proxies
- new: plc algorithm (packet loss concealment)
- new: Spanish translation
- new: capability request applet parameter and function call
- new: media timeout option
- new: srv dns record lookup option
- improvement: rtcp option
- fix: final codec offer in ACK caused one way audio problem. Now this can be disabled with the setfinalcodec option.
- fix: sequence number overrun caused media RTP problems after 21 minute

Version 3.6

- new: api_playsound
- new: ackforauthrequest
- new: 100rel PRACK support
- new: early mediasend applet parameter
- new: logtoconsole applet parameter
- new: autoaccept applet parameter
- new: rejectionbusy applet parameter
- new: sendmac applet parameter
- new: call timeout setting
- new: API_GetVersion
- new: API_Chat
- new: API_TransferDialog
- new: iPhone skin
- improvement: show the sip display-name for incoming calls
- improvement: receive chat messages as javascript notifications
- improvement: call to URI (loading the server from URI and not from settings)
- improvement: discparty parameter in CDR records
- improvement: transfertype 3 and 4
- improvement: http tunneling
- improvement: java script event notifications
- fix: background color settings in the chat and audio settings form
- fix: one way audio on some circumstances since version 3.5
- fix: restored compatibility with java 1.4
- fix: authentication with empty parameters (for example empty opaque)

Version 3.8

- new: voice recording
- new: aec (automatic echo canceller -beta version)

- new: automatic transport detection (failovering from UDP encryption -> TCP-tunneling -> HTTP)
- new: httpsessiontimeout applet parameter
- new: ringtimeout applet parameter
- new: waitforunregister option
- new: option to enable peer to peer calls (direct call to SIP URI)
- new: various new applet parameters and API function to allow more external control
- improvement: disabled nagle algorithm for TCP tunneling
- improvement: auto detect audio card wideband capabilities before the first call is made
- improvement: packet loss concealment enhancements. Plc is enabled by default
- improvement: handling of out of order packets
- improvement: jitter buffer fine-tuning
- improvement: call transfer
- improvement: bigger range for the volume control
- improvement: thread manager
- improvement: random UDP port for tunneling
- improvement: autodetect direct server access possibility (while using tunneling_
- improvement: call duration display in hh:mm:ss format
- fix: always clear old credentials on new settings and on unregister
- fix: API_Dtmf, API_Unregister (waitforunregister)
- fix: iphone skin compatibility with IE, Chrome, Firefox and Safari
- fix: codec change on reinvite

Version 4.0

- new: conferencing
- improvement: iLBC codec (now it is enabled by default with low priority)
- improvement: iPhone like skin example and documentation upgrade

Version 4.2

- new: denoise filter (noise suppression)
- new: AGC (auto gain control)
- new: the ability to set custom ringtone
- new: call forwarding
- new: silence detection and suppression
- new: streaming audio file to the other end
- improvement: AEC module complete rewrite (currently available on windows only)
- improvement: call recording and sound playback API's
- improvement: new encryption for TCP and HTTP tunneling
- improvement: API_PlaySound can play both local and remote files
- improvement: HTTP tunneling
- fix: address incomplete bug with INVITE
- fix: one way audio in conference
- fix: some minor issues with codec negotiations

Version 4.3

- new: recording in gsm format
- new: failovering based on SRV records
- new: voicemail
- new: mediaencl (AEC, AGC, denoise) now available also on MAC
- fix: via branch bug
- fix: other minor issues
- fix: dtmfmode when set to 3 now sends in both formats

Version 4.4

- new: skins
- improvement: JS API
- fix: minor bug fixes

Demo version

We are providing a demo version which you can try and test before any payment. The demo version has all features enabled but with some restrictions to prevent commercial usage. The limitations are the followings:

- maximum 10 simultaneous webphone in the same time
- will expire after several months of usage (usually 2 or 3 month)
- has maximum ~100 sec call duration restriction
- maximum 10 calls / session limitation. (After 10 calls you will have to restart your browser)
- will work maximum 20 minute after that you have to restart it or restart the browser
- can be blocked from Mizutech license service

We can also send out a demo for our partners with only the trial period limitation (will expire after several months of usage) and without the other limitations.

Download link: http://www.mizu-voip.com/Portals/0/Files/webphone_demo.zip

Licensing

The webphone is sold with unlimited client license or restricted number of licenses. You can use it with any VoIP server(s) on your own and you can deploy it on any webpage(s) which belongs to you or your company. We have to hardcode your VoIP server(s) address (IP or domain name) and/or your website(s) address. After successful tests please ask for your final version at support@mizu-voip.com.

Release versions don't have any limitations (mentioned below in the "Demo version" section) and are customized for your domain. All "mizu" and "mizutech" word are removed and the self signed certificate is with your brand name (which is usually your company name or domain name).

Your final build must be used only for you company needs (including your direct sip endusers).

Title, ownership rights, and intellectual property rights in the Software shall remain with MizuTech and/or its suppliers.

The agreement and the license granted hereunder will terminate automatically if you fail to comply with the limitations described herein. Upon termination, you must destroy all copies of the Software. The software is provided "as is" without any warranty of any kind.

Some audio codecs that can be used with the webphone (e.g. G.729) can be patented in your country and require you to pay royalties to their licensors (patent license per channel). Mizutech doesn't sell codec patent licenses.

You may:

- Use the webphone on any number of computers
- Give the access to the webphone for your customers or use within your company
- Use the webphone on multiple webpage's and with multiple VoIP servers (after the agreement with Mizutech). All the VoIP servers must be owned by you or your company. Otherwise please contact our support to check the possibilities

You may not:

- Resell the webphone
- Sell "webphone" services for third party VoIP providers and other companies
- Reverse engineer, decompile or disassemble the webphone
- Modify the software in any way (except modifying the applet parameters and to add digital certificate if needed)
- Rent, lease, grant a security interest in, or otherwise transfer purchase rights of the webphone

Known limitations

- Switching between wideband and narrowband is not supported with the default settings under MAC and Linux (the webphone will handle this automatically with default settings)
- Some Linux distributions doesn't have full duplex audio driver for Java. In these circumstances only one audio stream can be used (the webphone should be able to handle this automatically with default settings)

- Some OS/browser configurations might not support wideband audio (in these circumstances the webphone will automatically use narrowband only)
- Video is not supported due to difficulties in Java video support (might be introduced in a later release)
- Local file storage is not reliable from browsers due to OS and browser security restrictions (might not remember last login settings and local voice recording should not be used)
- The full STUN specification is not implemented due to file size considerations (a light STUN version is used with a built-in list of available servers if needed)
- The webphone is targeting PC platforms only. Only some Linux based smartphones are supported because of the lack of the J2SE support on mobiles

FAQ

How to get my own webphone?

1. Download and try the demo from http://www.mizu-voip.com/Portals/0/Files/webphone_demo.zip
The pricing can be found at <http://www.mizu-voip.com/Support/Webphonepricing.aspx>
2. Contact Mizutech sales at sales@mizu-voip.com with the following details
 - a brand name for your custom build (can be your company name or web domain name for example)
 - your VoIP server(s) address (ip or domain) and/or your web server(s) address (these have to be hardcoded in your release; otherwise anybody could just download it from your website and use as it owns.)
 - your company details for the invoice (if you are representing a company)
3. Mizutech support will send your own (branded) webphone build within one workday on your payment.
For the payments we prefer wire transfer. On your request we will send the bank details by email. If wire transfer is not possible then we can offer various alternative methods (credit card payment, paypal, etc)

What about support?

We offer free basic (email based) support to all our customers.
For “gold partners” we offer phone and 24/7 emergency support.
Maintenance upgrades are also free.
Email to support@mizu-voip.com with any issue you might have.
Guaranteed support hours depend on the purchased license plan.

What I will receive once I have made the payment for the webphone?

You will receive the followings:

- the webphone itself. This is one single file usually named as “webphone.jar” and you will receive your own branded (or white label) build without any demo or trial limitations with lifetime license
- latest documentations and examples
- invoice (if you haven’t received it before the payment)
- support on your request according to the license plan

Can Mizutech do custom development if required?

Yes, please contact us at support@mizu-voip.com. Please contact us only with webphone related or VoIP specific projects.

Should I have programmer skills to be able to use the applet?

No. The applet can be deployed by anybody. If you already have a website, then you should be able to copy-paste and rewrite the example HTML codes. Some basic [Java Script knowledge](#) is required only if you plan to use the Java Script API (although there are copy-paste examples for the API usage also)

Is it working with any VoIP servers?

Yes. The webphone is using the SIP protocol standard to communicate with VoIP servers and softswitches. Since most of the VoIP servers are based on the SIP protocol today the webphone should work without any issue.

If you have any incompatibility problem, please contact support@mizu-voip.com with a problem description and a detailed log (loglevel set to 4). For more tests please send us your VoIP server address with 3 test accounts.

Is it working with any mobile device?

No. The webphone works only on devices with support for Java Standard Edition. This means almost all PC/laptop OS and a few linux based phone (not Android). For Java Mobile Edition we have a separate client application that can be used to initiate calls, callbacks and phone to phone calls or send SMS message through our VoIP server. For other devices (iPhone, Android, Symbian) please check our mobile softphones: <http://www.mizu-voip.com/Products/MobileSoftphones.aspx>

Is it working with any browsers?

Yes. We have made tests with all major browsers and we have not found any incompatibility issues. The users must have the Java 2SE installed for their browser. After world-wide statistics 95% of the browsers are java enabled. For the rest of the browsers without java already installed the toolkit or JNLP deploy methods will automatically direct the user to the java download page. This is around a 10 MB download and is automatically installed without the need to restart the OS.

If the webphone doesn't start in your browser, then make sure that java is working correctly: <http://www.java.com/en/download/testjava.jsp>

Do I need to install java on my web or voip server?

No.

Do I need some kind of third-party media server or Mizutech service?

No. The webphone will connect directly to your softswitch or SIP proxy. There is no need to any additional software components or services for the webphone.

Is the webphone using any Mizutech service or will contact Mizutech servers?

No.

The webphone will connect to your voip server directly.

The webphone might contact Mizutech servers for the following reasons:

- demo versions might contact Mizutech licensing servers time to time. This is completely removed in final builds (after your order)
- applet launcher script is set to www.mizu-voip.com/webphonedeploy.js in some examples. You can rewrite it to www.java.com/js/deployJava.js or just download this short java scrip file from any of the previously mentioned locations and store in on your web server.
- the applet will use a random stun server by default hosted by Mizutech. This light stun protocol is usually not required for normal functionality so you can safely disable it (set the "use_stun" applet parameter to 0) or set the "stunserveraddress" applet parameter to your stun server.

What software do I need to be able to use/deploy the webphone?

- Webserver (rented, hosted)
- Some server side scripts if more customization/changes are necessary that is permitted by html applet parameters of from java script
- Voip access (one of the followings):
 - account(s) at any VoIP service provider OR
 - a free or open source VoIP server (asterisk, openSIPS) OR
 - rent a softswitch (SaaS) OR
 - purchase a server with commercial support ([Mizutech](http://www.mizutech.com), Cisco, brekeke, etc)

Are there benefits or drawbacks making SIP calls using Java applet vs a Flash component?

Flash doesn't have the codec's commonly used in VoIP (such as g711 (pcmu/pcma), gsm, speex, g.729, g.723, etc) and plugins are not allowed. It has only its proprietary codec, so all implementation will need a separate "media gateway" which will do the conversion. Please note that codec conversion should be avoided in VoIP whenever possible because sound quality loss, high resource utilization, additional costs and additional network complexity.

Is there any way to get the source code?

The VoIP applet is a close-source application. The source code is available only for internal usage and for a higher price.

Can the apple size be reduced?

Although the default applet size is very small by default (with a download time less than one second with a good internet connection), we can reduce the size of your copy even more by removing some components not used by you. Contact us about the possibilities. You might be required to pay for this additional customization. The applet can be also cached by the browser client (so it is downloaded only the first time when a user visit your page)

What kind of licensing options are available?

We are usually selling the webphone with unlimited client usage. We have separate pricing options to fulfill all of our customers' needs and budget: <http://www.mizu-voip.com/Products/WebPhone.aspx>. Alternatively we can offer the applet as a service with small monthly fees, but this may be not so efficient like the one-time payment (because increased bank fees for small amount of transfers)

The calls are routed through the web server?

No.

The calls are directly routed between the webphone.jar (which is running in the client browser) and your VoIP server(s). From this point of view the webphone acts as any other SIP endpoint (like a normal softphone or IP Phone).

The webphone.jar is downloaded from your web server as any other resource (like an jpg image for example).

After the client browser will download the webphone from your webserver the whole functionality has nothing to do anymore with your web server. The webphone will connect directly to your VoIP server(s) using SIP/RTP protocols.

How to generate and send logs

If you have any problem with the webphone, Mizutech support most probably will ask you to send a detailed description and logs about the problem.

You can create a log in the following way:

- set the "loglevel" applet parameter to 5

- open the webphone in a browser. a separate log window should appear

- once you reproduced the problem, send the content of the log window to support@mizu-voip.com

You can copy the content with the Ctrl+A, Ctrl+C, Ctrl+V key combinations

Note:

- If the problem is call related, then make sure to have only one call in the log. That one in which the problem was reproduced.

- Another method to extract logs is the java console (a java incon usually appears on the right-bottom corner of your desktop. From there you can activate the java console)

- In addition to the log file, Mizutech support might ask one or two SIP account valid on your server to be able to reproduce the problem

ERROR and WARNING messages in the log

Make sure that your softswitch

If you set the applet loglevel higher than 1 than you will receive messages that are useful only for debug. A lot of ERROR and WARNING message cannot be considered as a fault. Some of them will appear also under normal circumstances and you should not take special attention for these messages. If there are any issue affecting the normal usage, please send the detailed logs to Mizutech support (support@mizu-voip.com) in a text file attachment.

Failed outgoing calls

By default only the PCMU, PCMA, G.729 and the speex ultra-wideband codec's are offered on call setup which might not be enabled on your server or peer UA.

You can enable all other codec's (PCMA, GSM, speex narrowband, iLBC and G.729) with the usexxx applet parameters set to 2 or 3 (where xxx is the name of the codec: use_pcma=2, use_gsm=2, use_speex=2, use_g729=2, use_ilbc=2).

Some servers has problems with codec negotiation (requiring re-invite which is not support by some devices). In these situations you might disable all codec's and enable only one codec which is supported by your server (try to use G.729 if possible. Otherwise PCMU or PCMA is should be supported by all servers)

Calls are disconnecting

If the calls are disconnecting after a few second, then try to set the "invrecorderoute" applet parameter to "true".

If the calls are disconnecting at around 100 second, then most probably you are using the demo version which has a 100 second call limit.

Not working with Avaya systems

Select UDP (and not TCP or TLS) for the link protocol on your Avaya configuration.

Why I see RTP warning in my Asterisk log

The webphone will send a few short UDP packets (\r\n) to open the media path (also the NAT if any).

For this reason you might see the following or similar Asterisk log entries: WARNING[8860]: res_rtp_asterisk.c:2019 ast_rtp_read: RTP Read too short

These packets are simply dropped by Asterisk which is the expected behavior. This is not a webphone or Asterisk error and will not have any negative impact for the calls. You can safely skip this issue.

RTP statistics

For RTP statistics increase the log level to at least 3 and then after each call longer than 7 seconds you should see the following line in the log:

EVENT, rtp stat: sent X rec X loss X X%.

If you set the "loglevel" applet parameter to at least "5" than the important rtp and media related events are also stored in the logs.

NAT settings

In the SIP protocol the client endpoints have to send their (correct) address in the SIP signaling, however in many situations the client is not able to detect it's correct public IP (or even the correct private local IP). This is a common problem in the SIP protocol which occurs with clients behind NAT devices (behind routers). The clients have to set its IP address in the following SIP headers: contact, via, SDP connect (used for RTP media). A well written VoIP server should be able to easily handle this situation, but a lot of widely used VoIP server fails in correct NAT detection. RTP routing or offload should be also determined based in this factor (servers should be always route the media between 2 nat-ed endpoint and when at least one endpoint is on public IP than the server should offload the media routing). This is just a short description. The actual implementation might be more complicated.

You may have to change the webphone configuration according to your SIP server if you have any problems with devices behind NAT (router, firewall). If your server has NAT support then set the use_stun and userport parameters to 0 and you should not have any problem with the signaling and media for webphone behind NAT. If your server doesn't have NAT support then you should set these settings to 2. In this case the webphone will always try to discover its external network address.

Example configurations:

If your server can work only with public IP sent in the signaling:

-use_rport 2 or 3

-use_stun: 1 or 2

If your server can work fine with private IP's in signaling (but not when a wrong public IP is sent in signaling):

-use_rport 9

-use_stun: 0

-optionally you can also set the "udpconnect" applet parameter to 1

Asterisk is well known about its bad default NAT handling. Instead of detecting the client capabilities automatically it relies on pre-configurations. You should set the "nat" option to "yes" for all peers.

More details:

<http://www.voip-info.org/wiki/view/NAT+and+VOIP>

<http://www.voip-info.org/wiki/view/Asterisk+sip+nat>

http://www.asteriskguru.com/tutorials/sip_nat_oneway_or_no_audio_asterisk.html

I have call quality issues

In this case you should verify the followings:

- you have good call quality using a third party softphone from the same location (try X-Lite for example). If not, then the problem should be with your server, termination gateway or bandwidth issues.
- change your preferred codec (with the use_XXX applet parameters where XXX have to be replaced with the codec name)

I have one way audio

1. Set the “setfinalcodec” applet parameter to 0 (especially if you are using Asterisk or OpenSIPS)
2. Set usestun and userport to 0 (especially if you are using SIP aware routers). If these don’t help, set them to 2.
3. Make sure that you have enabled all codec’s.
4. Make a test call with only one codec enabled (this will solve codec negotiation issues if any)
5. If you still have one way audio, please make a test with any other softphone from the same PC. If that works, then contact our support with a detailed log (set the “loglevel” applet parameter to 5 for this)

Audio device cannot be opened

If you can’t hear audio, and you can see audio related errors in the logs (with the loglevel applet parameter set to 5), then make sure that your system has a suitable audio device capable for full duplex playback and recording with the following format:

PCM SIGNED 8000.0 Hz (8 kHz) 16 bit mono (2 bytes/frame) in little-endian

You can verify this by using this applet: <http://www.jsresources.org/apps/JSInfoApplet.html>

If you have multiple sound drivers then make sure that the system default is workable or set the device explicitly from the webphone (with the “Audio” button from the default user interface or using the “API_AudioDevice” function call from java-script)

To make sure that it is a local PC related issue, please try the webphone also from some other PC.

You might also try to disable the wideband codec’s (set the use_speexwb and use_speexuwb applet parameters to 0 or 1).

Another source for this problem can be if your sound device doesn’t support full duplex audio (some wrong Linux drivers has this problem). In this case you might try to disable the ringtone (set the “playing” applet parameter to 0 and check if this will solve the problem).

No ringback tone

Depending on your server configuration, you might not have ringback tone or early media on call connect.

There is a few applet parameter that can be used in this situation:

- set the “changesptoring” applet parameter to 3
- set the “natopenpackets” applet parameter to 10
- set the “sendearlymedia” applet parameter to true
- change the use_stun applet parameter (try with 0 or 2)

One of these should solve the problem.

The webphone quality is lower than other softphone or ip phone?

No. The webphone has a full featured, high quality built-in SIP and media stack capable to work as a normal SIP endpoint (as any other softphone, ip phone or device).

The quality will depend mostly on the following factors:

- the network link quality for on the webphone side and on your VoIP server (bandwidth, delay, jitter)
- the audio codec used in your network (the webphone has all the most popular high-quality codec built-in)
- the quality of the audio device and headset

Due to the browser/java stacks, the webphone has around 10 millisecond more delay compared to native application. This is not noticeable by the users.

The remote party hear itself back (echo)

To solve the aec issues you need to set the “aec” applet parameter to 2. (for better quality also set the “denoise” applet parameter to 1). Make sure that the dll’s (shipped in the mediaench.zip folder) can be downloaded from your server (there are no warnings in the logs regarding aec initialization). You should store the mediaench.dll and mediaenchx64.dll near the webphone.jar file on your server and enable the dll mime type (or set the “mediaenchext” applet parameter to “jar” and rename the dlls to jar: mediaench.jar and mediaenchx64.jar). The AEC should eliminate more than 90% of the echo with around 92% success rate. (This is if a speaker is used. If the user will use a headset than echo is generated only if the headset is broken)

The webphone doesn't register if I am using the Java Script API

Current version should not be affected by this issue (only before version 3.6).

For the Java Script API to work correctly it is important to let the webphone to send the first message to the server before you begin controlling it via the API. This can be done by using the `AI_ServerInit` function or one of the following applet parameters: `register`, `call`, `capabilityrequest`, `natkeepalive`. (If you already have the username/password information on startup, then you can set the “register” applet parameter to true and let the applet to register automatically. Otherwise the `capabilityrequest` or `natkeepalive` applet parameters should be used. This is a workaround for Java security restrictions which will restrict the applet as it would be unsigned when it is controlled externally from JavaScript).

Chat is not working

Make sure that your softswitch has support for IM and it is enabled. The webphone is using the MESSAGE protocol for this from the SIP SIMPLE protocol suite as described in [RFC 3428](#).

Most Asterisk installations might not have support for this [by default](#). You might use [Kamailio](#) for this purpose or any other [softswitch](#) (most of them has support for RFC 3428).

The webphone doesn't receive incoming calls

To be able to receive calls, the webphone must be registered to your server by clicking on the “Connect” button on the user interface (or in case if you don't display the webphone GUI than you can use the “register” applet parameter with supplied username and password)

Once the webphone is registered, the server should be able to send incoming calls to it.

The other reason can be if your server doesn't handle NAT properly.

Please try to start the webphone with `usestun` parameter set to 0 and if still not works then try it with 2.

If the calls are still not coming, please send us a log (set the applet `loglevel` parameter to 5)

What is the best codec?

There is no such thing as the "best codec". All commonly used codec's present in the webphone are well tested and suitable for IP calls. This depends mainly on the circumstances.

Usually we recommend G.729 since this provides both good quality and good compression ratio.

If G.729 is not available in your license plan, than the other codecs are also fine (GSM, speex, iLBC)

Otherwise the G711 codec is the best quality narrowband codec. So if bandwidth is not an issue in your network, than you might prefer PCMU or PCMA (both have the same quality)

Between webphone users (or other IP to IP calls) you should prefer wideband codec's (this is why you just always leave the speex wideband and ultra wideband with the highest priority if you have calls between your VoIP users. These will be picked for IP to IP calls and simply omitted for IP to PSTN calls)

To calculate the bandwidth needed, you can use [this tool](#).

What is the default codec priority?

If you doesn't change the codec priorities with the applet parameters, than the default codec order will be the following (listed in priority order):

1. speex wideband (enabled low priority 2)
2. G.729 (enabled low priority 2)
3. PCMU (enabled low priority 2)

4. PCMA (enabled low priority 2)
5. speex ultrawideband (disabled 1)
6. speex narrowband (disabled 1)
7. GSM (disabled 1)
8. iLBC (disabled -not activated 0)

This means that to prefer a codec you just have to add one single line for the applet parameter:

```
-use_myfavoritecodec=3
```

This will automatically enable and put your selected codec as the highest priority one.

If you set all codec with the same priority, then the real priority will be the following:

1. Speex ultrawideband (top priority)
2. Speex wideband
3. G729
4. G711
5. Gsm
6. Speex narrowband
7. Ilbc (lowest priority)

*Speex wideband and ultra-wideband can be automatically disabled if your sound card doesn't support the increased sample rate.

*The other endpoint usually will pick up the first codec, or the webphone will pick-up the first in this list from the list of codec's sent by the other peer

* G.729, GSM and speex narrowband and ultra-wideband codec's are disabled by default. Set use_g729,use_gsm, use_speex, use_speexuwb to 2 or 3 to enable them. (Make sure you have the proper G.729 licenses)

How to prefer one codec?

Set its priority to 3 and set the priority for all other codes to 2. In this case you preferred codec will be used whenever the other endpoint supports it and other codec's are used only if otherwise the call would fail.

For example the following parameters will set g.729 as the preferred codec:

```
-use_g729=3
-use_pcmu=2
-use_pcma=2
-use_gsm=2
-use_speex=2
-use_speexwb =2
-usespeexuwb =2
-use_ilbc =0
```

How to set only one predefined codec?

Enable only one codec by applet parameters and disable all others. In this case the call might fail if the other end doesn't support the selected codec.

For example the following parameters will force the softphone to use only pcmu:

```
-use_pcmu=3
-use_pcma=1
-use_g729=1
-use_gsm=1
-use_speex=1
-use_speexwb =1
-use_speexuwb =1
-use_ilbc =1
```

I got an upgrade for my feature/issue request, but nothings seems to be changed

Make sure that you are actually using the new version. Browsers can cache java applets so there is a change that you are still using the old version. Refresh the browser cache by pressing F5 or Ctrl+F5.

In rare circumstance the JVM might also cache. For this close the webphone page, run the Java console and type 'x' to clear the JAR cache then restart all browsers instances and re-open the webphone page.
You might also clear your browser cache (delete the files) to be sure that the old version is deleted.
See also the "How to prevent browser caching" FAQ.

How to prevent browser caching?

When multiple webphone are used with different parameters, in some environments the browser can cache the previous download and not to apply the new parameters. This can be avoided by using different URL for the applets with different parameters.
Otherwise the applet cache can be disabled as described [here](#) and [here](#).

How can I add an address book/contact list?

There is no contact list embedded in the webphone because this can be done very easy with any server side script (.PHP, .NET) and better adopted to your needs.
You can easily use the java script API to add VoIP functionality to your address book or contact list.

How to implement click to call?

Click to call can be implemented using the Mizutech Webphone without much work. You will just have to preset the serveraddress, username, password, register, call, callto applet parameters so when the user launch your webpage, the only thing need to be done is a simple click on the call button (or the call can be also launched automatically if the "call" applet parameter is set to true. This depends on your website logic).

For the skinning you have two choices:

- Using the default java user interface. In this case you should set the "compact" applet parameter to "true" and also set the "applet_size_width" and "applet_size_height" parameters accordingly (So only the call button will remain and the space needed for the status display, such as "ringing", "in call" and others)
- In case if the default user interface is not suitable for your needs, than you can easily create your own call button in simple HTML and use the webphone Java Script API (while running the webphone in the background). For a complete example, please have a look at the iPhone skin demo.

The applet parameters are usually generated dynamically from your server side script (where you can use anything you wish: PHP, .NET, JSP, etc)

I have problems on MAC or/and with browser X

The simplest "applet" tag based deployment might not work properly under MAC but most all the other examples do. Please consult the "Popup.htm" or the "Toolkit.htm" source in the Examples directory. Alternatively you can consider deploying by JNLP.

What can I do with the JS API

The main purpose of the JS API is the followings:

- -create custom logic regarding your needs (for example auto login based on http session or different call scenarios, call recording, etc.)
- -create your custom skin

How to do skin customization?

In this case, you will have to run the webphone in the background (set its size to 0 or 1) and control it via its Java Script API. Please refer to this document for the Java Script API.

A fully working skin example can be found in the "iphone skin" directory from the demo package.

This skinning can be done by any web developer using simple HTML, CSS and Java Script.

If you don't have a web developer around, then please contact us with your requirements at support@mizu-voip.com.

The price will be around \$500 (also depending on your needs)

The Java Script API is not working in my browser

Please check the **JSAPI.htm** and the **Popup.htm** source in the Examples directory for a working demo.
Also make sure that jar and jnlp mime types are allowed in your webserver.

More help on interaction between java and javascript:

http://download.oracle.com/javase/6/docs/technotes/guides/plugin/developer_guide/java_js.html

<http://java.sun.com/products/plugin/1.3/docs/jsobject.html>

<http://download.oracle.com/javase/tutorial/deployment/applet/invokingJavaScriptFromApplet.html>

<http://download.oracle.com/javase/tutorial/deployment/applet/invokingAppletMethodsFromJavaScript.html>

The applet is not loading in the browser

If the applet is not accessible you might get a java error (most probably: "java.lang.ClassFormatError: Incompatible magic value 218774561 in class file webphone") or the applet is not loading at all.

- Make sure that java is installed and enabled in your browser
 - Make sure that the "jar" mime type is enabled on your webserver
 - Make sure that you can download the applet jar with your browser if you type its exact URL. For example when you type <http://myserver.com/webphoneapppath/webphone.jar>, the download dialog should appear in your browser. Otherwise it means that you haven't placed the webphone.jar in the right place or your webserver/web-application is blocking it.
 - Make sure to deploy the applet in a not restricted (public) directory on your webserver. You might get errors if the directory is protected for example with form based authentication. If your application has to be protected, you should still deploy the jar file in a public directory and refer to it with its absolute path. For this you need to set the "archive" parameter correctly. Example: archive: 'http://www.mizu-voip.com/F/_EXTERN/demo/webphone.jar'
- If you are running IIS/.NET then you might add this web.config in the webphone folder:

```
<configuration>
  <system.webServer>
    <!--add this-->
    <security>
      <authorization>
        <add accessType="Allow" users="*" />
      </authorization>
    </security>
  </system.webServer>
</configuration>
```

The demo examples are not working on my PC

This issue can happen in some circumstances only if you launch the applet from local file for testing (not from a web server). Make sure that the file path is not too large for java. Copy the example directory to the C:\ directory and try again.

How can I use TCP and HTTP tunneling?

VoIP over TCP and HTTP is not a standardized protocol. This option can be used only with the Mizu VoIP server. To integrate it with your existing VoIP infrastructure you will have to use our VoIP tunneling server (no modification will be needed in your existing servers). We offer free trial install. More details can be found here: <http://www.mizu-voip.com/Products/VoIPTunnel.aspx>.

For http transport the "transport" applet parameter must be set to 3 (http tunneling) or 4 (first udp encryption, then automatic switch to http tunneling if needed). From version 3.6 the webphone can automatically detect the best transport protocol if the "autotransportdetect" applet parameter is set to "true" (no need to preset the "transport" parameter). You should also set the "useencryption" applet parameter to "true". The webphone will use the browser capabilities to send/receive the html messages, thus bypassing corporate firewalls.

To turn off proxy authentication, insert this line in your jnlp: <property name="javaws.cfg.jauthenticator" value="none" />

To control where the traffic is forwarded from the server side, use the "upperserver" applet parameter. To check also a direct route to the upper server, use the "directserveraddress" applet parameter.

How to access the applet from Java Script

Example:

```
function getMizuApplet()
{
  if (theApplet == null) {
    theApplet = document.getElementById('webphone');
  }
  // See if we're using the old Java Plug-In and the JNLPAppletLauncher
  try {
    theApplet = theApplet.getSubApplet();
  } catch (e) {
    // Using new-style applet -- ignore
  }
}
```

```

    }
    return theApplet;
}

// Call API_XXX() via the getMizuApplet() method
getMizuApplet().API_XXX();

```

For more examples please check the “JSAPI.htm” and the “Toolkit_with_JS.htm” files.

How to customize the applet loader?

You can use the JNLP deployment method with an icon parameter in the information section:

Example:

```

<information>
  <title>Mizu Webphone demo</title>
  <vendor>Mizutech</vendor>
  <href>"http://www.mizu-voip.com/"</href>
  <description>A VoIP client applet</description>
  <description kind="short">VoIP client application to initiate phone calls over the internet.</description>
  <icon href="http://www.mizu-voip.com/wicon.jpg"/>
  <icon kind="splash" href="http://www.mizu-voip.com/wicon.jpg"/>
</information>

```

<icon>

Describes an icon/image that represents the application. Web Start uses the icons during startup in the download progress popup, for desktop shortcuts and in the Web Start application manager. 64x64 icons are shown in the download progress popup and 32x32 icons are used for desktop icons and in the Web Start app manager. Web Start automatically resizes icons with other dimensions.

Attributes:

href=url , required

Contains a URL to a web location containing an image or an icon. Only JPEG and GIF graphic formats are supported.

version=version , optional

Specifies the version of the image.

width=pixels , optional

Describes the width of the icon in pixels.

height=pixels , optional

Describes the height of the icon in pixels.

kind=default|selected|disabled|rollover, optional

Describes the use of the icon. Default value is default.

depth=number , optional

Describes the color depth of the image in bits-per-pixel. Common values are 8, 16, or 24.

size=bytes , optional

Specifies the size of the image in bytes.

How to deploy the mediaench module

Short answer:

just copy the dll’s near your webphone.jar file.

Long answer:

This module is needed if you enable one of the following options: aec, denoise, silencesuppress, agc. You should store the mediaench.dll and mediaenchx64.dll near the webphone.jar file on your server and enable the dll mime type (or set the “mediaenchext” applet parameter to “jar” and rename the dll file extension to jar). If the files cannot be found or loaded than the webphone will not use these features but should remain functional. You should test the dll availability by directly accessing from the browser with the exact url (For example: www.mydomain.com/webphone/mediaench.dll). The browser should be able to download the dll, dylib or the jar.

The webphone will download one of these libraries only at the first usage and subsequent usage will be served from the local cache.

Tunneling from behind MS Forefront TMG proxy server

TMG cannot handle streaming well. For this reason the webphone will automatically switch off the streaming and will use packet by packet mode when used with the Mizu [VoIP Tunneling](#). However the firewall built into the TMG server might disable this also after a long call. The best way for TMG users is to allow TCP port 443 of configure VoIP access as described below:

<http://technet.microsoft.com/en-us/library/dd441021.aspx>

<http://technet.microsoft.com/en-us/library/ee690384.aspx>

How to send log from the webphone

If you have any problem with the webphone, Mizutech support most probably will ask you to send a detailed description and logs about the problem.

You can create a log in the following way:

- set the "loglevel" applet parameter to 5
 - open the webphone in a browser. a separate log window should appear
 - once you reproduced the problem, send the content of the log window to support@mizu-voip.com
- You can copy the content with the Ctrl+A, Ctrl+C, Ctrl+V key combinations

Note:

- If the problem is call related, then make sure to have only one call in the log. That one in which the problem was reproduced.
- Another method to extract logs is the java console (a java icon usually appears on the right-bottom corner of your desktop. From there you can activate the java console)
- In addition to the log file, Mizutech support might ask one or two SIP account valid on your server to be able to reproduce the problem

How can I replace the applet certificate?

This step is optional. The webphone will work fine even without a code signing certificate.

By default you will get the applet with a self-generated certificate from Mizutech. In this case a warning window with a red exclamation mark will appear at the first launch with an "always trust..." checkbox unchecked by default. You have the possibility to change this certificate with your owns. In that case the red mark will turn to green and the "always trust..." checkbox will be checked by default which is more user friendly.

To use a certificate that is recognized by Java installations on the internet, you need to get a certificate from a certification authority that have their root certificates shipped and installed with the JDK/JRE. You can list the installed root certificates with the following command: `keytool -list -keystore /usr/local/j2sdkXXX/jre/lib/security/cacerts` (adapt the path to your installation, press ENTER when asked for a password)

We are providing the java applet with a selfsigned certificate. You can replace this certificate with yours that you can purchase from CA companies like VeriSign, Equifax Secure, Entrust, GTE Cyber Trust, Thawte, GeoTrust, BALTIMORE, [startcom](#) etc.

You will need to request a "code signing digital certificate for java applet".

To apply your certificate you can use the jarsigner tool. You can read more details [here](#), [here](#) and [here](#).

Example:

1. **Generate CSR** (only if you need to generate a CSR for the CA)

```
keytool -genkey -keyalg rsa -keystore codesigncert.jks -alias ALIAS
keytool -certreq -alias ALIAS -keystore codesigncert.jks -file phonemas.csr
```

You should receive your certificate as a .p12 or .pfx file (if not, than export the file from the browser or try to [convert](#) it)

To be able able to sign your applet, you will have to **get the alias** from the certificate:

```
keytool -list -storetype pkcs12 -keystore CERTFILENAME -v
```

(the alias is displayed in the line which begins with "Alias name:". Once you have the alias, then you can move to the following step)

Sign your webphone applet with this command:

```
jarsigner -storetype pkcs12 -keystore CERTFILENAME -signedjar result_webphone.jar orig_webphone.jar ALIAS
```

Alternatively you can download a GUI for the jarsigner named [KeyTool IUI](#)

With Thawte CA you will have to follow the following steps:

1. request code signing certificate from here: <https://www.thawte.com/code-signing/index.html>. The price is around \$150.
2. you will need to upload or send some documents to identify yourself or your company. Thawte might also call you on your phone for verification
3. you will receive the certificate shortly and maybe also Cross Root CA and Signing Intermediate certificates. If received as a text file, rename the files from .txt to .cer
4. install the java SDK on your PC: <http://www.oracle.com/technetwork/java/javase/downloads/index.html>
5. use the following commands from the command line:
6. create keystore with initial certificate: `keytool -genkey -keysize 2048 -keyalg RSA -alias YOURCERTNAME -keystore KETSTOREFILENAME`
7. import Intermediate certificate if you need: `keytool -import -trustcacerts -alias intca -file intca.cer -keystore KETSTOREFILENAME`
8. import Cross Root CA: `-keytool -import -trustcacerts -alias crossca -file crossca.cer -keystore KETSTOREFILENAME`
- import your certificate: `keytool -import -trustcacerts -keystore KETSTOREFILENAME -alias YOURCERTNAME -file yourcertificate.cer`
9. rename the webphone.jar that you have received from Mizutech to uwebphone.jar
10. sign the applet: `jarsigner -keystore KETSTOREFILENAME -signedjar webphone.jar uwebphone.jar mizutech`

Contact Mizutech support if you have any difficulties applying the certificate yourself.

Resources

You can find more details about java applet deployment here: <http://download.oracle.com/javase/6/docs/technotes/guides/jweb/index.html>

Mizu WebPhone homepage : <http://www.mizu-voip.com/Home/WebPhone.aspx>

Demo package: http://www.mizu-voip.com/Portals/0/Files/webphone_demo.zip

Demo (running older version): <http://www.mizu-voip.com/Home/PublicPhone.aspx>

Example html: Example.htm (if you have received it with this document. Otherwise it can be found in the downloadable demo package)

For help, contact support@mizu-voip.com