

WEB access to the Rander server using Rander WEB

Why do it?

In recent years, more and more applications are developed based on the WEB technology. This is convenient, does not require application updates at each workplace, it is not tied to the operating system, and facilitates the solution of routing problems in the organization of access to the application from outside the local network.

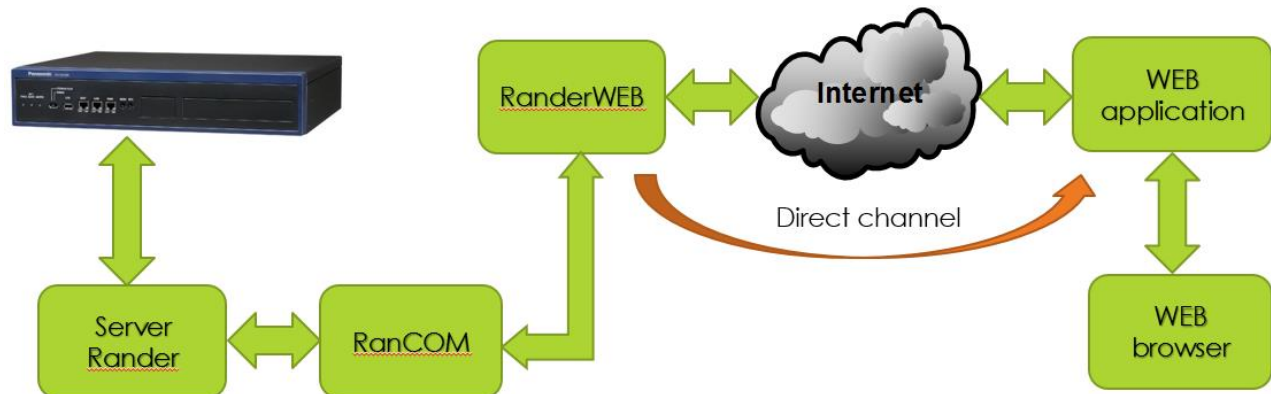
But this technology until recently there were significant shortcomings. In particular, the real problem in the event of on-line applications, and real-time processes. For such solutions needed to constantly poll the ports of a remote server that is not convenient, not exactly, and requires a lot of energy. Especially when it comes to applications running on mobile devices.

Rander CTI application runs under Windows and provides a COM-library for integration with external applications. If it is an external application running in Windows, then all is well, COM-Library can be connected to most modern applications such as MS Office and others.

But what if your application is running on Linux, designed as a WEB application, but still located somewhere on the hosting? How to integrate it with the PBX directly from the application to manage calls and benefit from PBX some information about the call and the caller's number? Linux does not support TAPI and technology COM, then reach out to any PBX on TAPI, or to Rander server via COM will be impossible.

To solve this problem we have created an application Rander WEB, which on the one hand communicates with the server Rander, and thus can control the PBXs and receive events, and on the other hand, it interacts with the WEB applications regardless of their location, operating system, and so forth.

How it works?



As you can see, RanderWEB is an application which to communicate with the WEB application uses RanCOM, connected to the server Rander. However, there are two ways to interact with WEB applications:

1. Rander Web API allows you to control your phone with a simple query HttpGET type:
`http://[server_address]/rander/api/[command]/[parameter1]/[parameter2]?token = [authentication_token]`

That is, the command for management of PBX can be sent from any application or from the command line of any WEB browser. However, to monitor the state of the lines in this embodiment is impossible.

2. Management and monitoring are carried out with the help of SignalR technology. In this case, between RanderWEB and WEB application establishes direct asynchronous bi-directional communication channel that allows you to transfer any kind of information. In particular, it can PBX control commands, messages from the PBX on changes in the lines, as well as voice data, video, etc.

How to test it?

To test this functionality you need to install all the necessary components. For those who first became interested in this problem, try to present a brief installation guide.

First, you need to install the TSP (TAPI Service Provider) driver that enables you to control PBX via the external interface. Each manufacturer produces PBX TSP drivers for

each particular type of PBX, so you need to contact your PBX installer and request a driver that is suitable for that PBX, which you plan to perform the testing. When it comes to Panasonic PBX, the driver you can download here

<http://randersoft.com/en/download.shtml>

As we develop Rander based TAPI specifications from the Panasonic company, the further description of it will go about this type of PBX. For all other types of PBX is the same, except for the TSP driver.

TSP driver installation.

And so, download the TSP driver and set it to the intended machine. When you install, you can use the installation instructions

<http://randersoft.com/download/TDA/PanasonicTSPinstManualv42.pdf>

During the installation process, according to these instructions, you must follow the procedure Check Location, check the connection to PBX, and our computer. Be sure to align CTI port number specified in the TSP Configuration driver and PBX. Once this procedure is completed successfully, you can install Rander.

Rander installation.

Download Reader V.5 distribution from our site

<http://randersoft.com/en/download.shtml> and set on the same machine. Check mark to indicate the components that will be installed, should be left unchanged. Except ROA (Rander Outlook Addin), which we in this work is not useful.

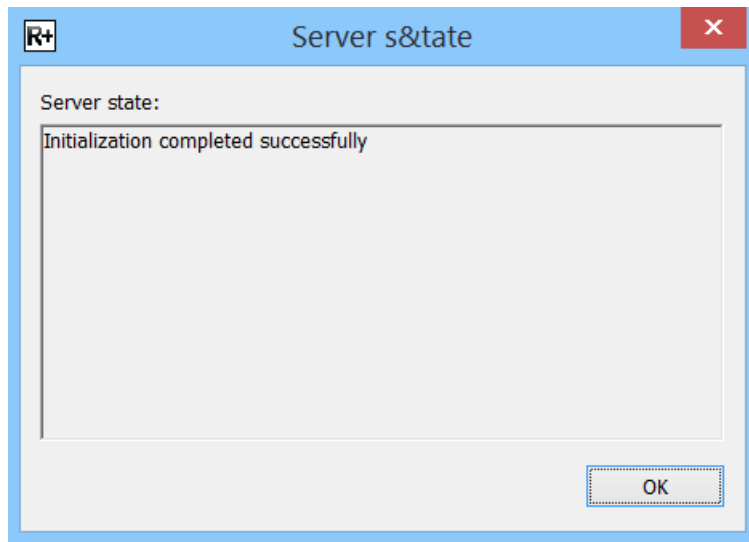
Before installation, read the installation instructions Rander

<http://randersoft.com//install.shtml>

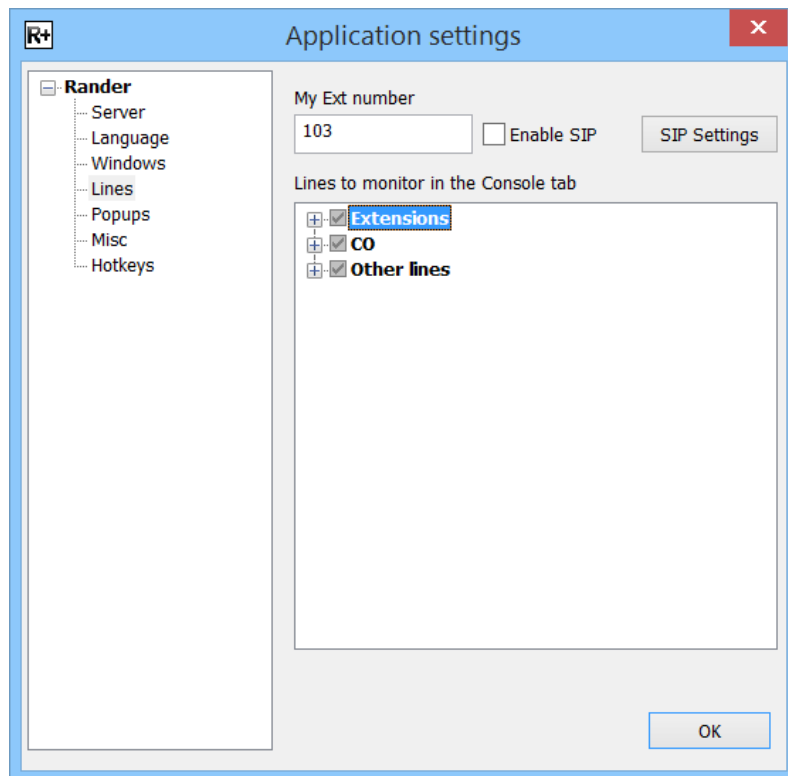
After a successful installation, it is desirable to run the client Rander to check that we can operate the phone, which is located on our table and to which we are tied Client Rander. Note that after you run the client Rander, at the bottom of the indicators will connect to the server, PBX-based phone calls, contact base and the fact that the built-in SIP phone registration. Since SIP phone at the station, we have not yet registered, it will be red. Indicators of server, call log and contacts database will be green, but the indicator PBX connect will be red. This means that communication with the PBX is not yet established. This is not terrible or anything, because the TAPI session initialization procedure is quite long and can take anywhere from several minutes to several tens of minutes. It depends on the capacity of the PBX. In order to

understand what is happening, go to Tools \ Server. During initialization, the message "Please wait, initializing."

After successful completion of initialization, the message "Initialization completed successfully" and the indicator connected to the PBX will turn green.



You can now test the ability to control the phone and the tab console can see the status of the lines in real time. Do not forget to choose the ones that line beyond which you want to watch. This is done in the Option \ Application settings \ Lines.



RanderWEB installation.

Now that Rander installed and we were convinced that it works properly, you can install RanderWEB. To do this, download it from the same download page under paragraph 4

<http://randersoft.com/en/download.shtml>

Next, open the config.xml file and enter the appropriate settings:

- IP address of Rander server:
<RanderServerAddress>192.168.0.144</RanderServerAddress>
- Login, under which the client is connected to the Rander server:
<Login>admin</Login>
- Password used to connect the client to the server:
<Password>1234</Password>
Username and password are the same as in the menu
Option \ Application settings \ Server.
- The port number, which scans RanderWEB:
<ListenPort>5005</ListenPort>.

The above are examples of parameters. Each may have its own.

How to use the demo application?

You can then run the file RanderWEB.exe.
For testing purposes, we use Internet Explorer 11.

If everything is configured correctly, when you call the command line of the browser
http: // [IP address of the server Rander]: [port number] will see the home page of the
sample application.

Demo manage and monitor one phone

Web Api Demo

Документация по аутентификации находится на странице [WebAPI](#)

Login:

Password:

The demo application contains two windows, which correspond to two different ways of interacting with WEB applications.

Demo manage and monitor one phone uses the SignalR, as WEB API Demo - simple Http-GET requests.

Enter the username and password, which are specified in the config.xml file and click Login. If everything is correct, see the following page:

Web Api Demo

Документация по аутентификации находится на странице [WebAPI](#)

Login:

Password:

Logged in

Демо Управление и мониторинг одного телефона

Управление и мониторинг осуществляются с помощью технологии [SignalR](#)

Подключение нужно устанавливать к [RanderHub](#):

```
var rander = $.connection.randerHub;
```

Названия методов и их параметры аналогичны методам из [WebAPI](#)

Для получения в реальном времени информации о состоянии звонков нужно подписаться на событие `OnCallState`:

```
rander.client.OnCallState = function (eventArgs) { }
```

Объект `eventArgs` содержит следующие свойства:

- `extension` - внутренний номер линии, состояние которой изменилось
- `State` - новое состояние
- `Number` - номер, с которым в данный момент происходит или установлено соединение

Мониторинг состояния одного телефона

Отсутствуют события

Демо Консоль для мониторинга внутренних линий станции

Add line:

Extension	State	Number	Delete
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On the left we see the call control button and the monitoring of the lines in a solid list of changes in the state lines in the format of the log states. On the right - on-line console that allows you to monitor the status of lines in tabular form.

To log into the written information on several lines, you must repeatedly press the Set My Extension with different values. Each click adds a subscription to the status of the specified line. Because in the demo mode, we are able to manage only 5 lines, so can subscribe to a state of no more than five lines.

We turn to the right window, and press the button Add Line with different parameters. Each time you add a line in the on-line console. Will provide the incoming call to the PBX, and see that the state of subscribers changing in real time. After the call is answered, see the following picture:

Web Api Demo

Документация по аутентификации находится на странице [WebAPI](#)

Login:
 Password:

 Logged in

Демо Управление и мониторинг одного телефона

Управление и мониторинг осуществляется с помощью технологии [SignalR](#)
 Подключение нужно устанавливать к [RanderHub](#):
`var rander = $.connection.zanderHub;`
 Названия методов и их параметры аналогичны методам из [WebAPI](#)
 Для получения в реальном времени информации о состоянии звонков нужно подписаться на событие `onCallState`:
`rander.client.onCallState = function (eventArgs) { }`
 Объект `eventArgs` содержит следующие свойства:
 Extension - внутренний номер линии, состояние которой изменилось
 state - новое состояние
 Number - номер, с которым в данный момент происходит или установлено соединение

114
 103

Мониторинг состояния одного телефона

4.6.2015 16:1:59.514 114 <> : state_connected

- 4.6.2015 16:1:1.509 114 <> 9127808729 : state_ringing
- 4.6.2015 16:1:9.763 114 <> 9127808729 : state_connected
- 4.6.2015 16:1:10.901 114 <> : state_connected
- 4.6.2015 16:1:17.960 114 <> : state_idle
- 4.6.2015 16:1:17.972 114 <> : state_idle
- 4.6.2015 16:1:17.981 114 <> 592 : state_connected
- 4.6.2015 16:1:19.634 114 <> : state_idle
- 4.6.2015 16:1:55.392 114 <> 9127808729 : state_ringing
- 4.6.2015 16:1:58.519 114 <> 9127808729 : state_connected
- 4.6.2015 16:1:59.514 114 <> : state_connected

Демо Консоль для мониторинга внутренних линий станции

Add line

Extension	State	Number	Delete
102	state_idle		<input type="button" value="Delete"/>
103	state_idle		<input type="button" value="Delete"/>
105	state_idle		<input type="button" value="Delete"/>
107	state_idle		<input type="button" value="Delete"/>
108	state_idle		<input type="button" value="Delete"/>
114	state_connected		<input type="button" value="Delete"/>

In the log we can see who is calling and who said in an online console, see the current status of the line 114. Now, when it became clear how it all works, you can indulge with buttons and call control.

WEB API Demo

Go to the WEB API Demo and see how it works and why it is needed. Login Form is not necessary, as we have already done it once.

Call Monitor Demo

Rander Web API позволяет управлять телефонами с помощью простых [Http-GET запросов](#) вида:
`http://[адрес_сервера]/zander/api/[команда]/[параметр1]/[параметр2]?token=[токен_для_аутентификации]`

Login:
 Password:

 Logged in

[токен_для_аутентификации] получится из ответа на Http-POST запрос по адресу: `http://[адрес_сервера]/token`
 С телом запроса вида:
`grant_type=password&username=[имя_пользователя]&password=[пароль]`

Внутренний номер [Параметр1]:
 Внешний номер телефона [Параметр2]:

Функции (Названия кнопок соответствуют методам WebAPI):

[Параметр1]
 [Параметр1] [Параметр2]
 [Параметр1] [Параметр2]
 [Параметр1]
 [Параметр1]
 [Параметр1]

Последняя команда:

Enter the extension number in the Extension. After that we have to open the line to monitor and control. Push the button Open Line and at the bottom, below the inscription "The last command" get what we need to send to the side RanderWEB, to open the line.



As you can see, everything is quite transparent. First, a query is the server URL RanderWEB [/api/rander/openline/103](#)

And then transmits the value of the token, which we got when connecting to the server RanderWEB.

[?token=AQAAANCMnd8BFdERjHoAwE_Cl-sBAAAA984U8Ls7v0GOLkda8TtisQAAAAACAAAAAADZgAAwAAAAABAAAAA82u9JlAbqp9eFU90ElzH5AAAAAA SAAACgAAAAEAAAAKn-Fdmn2_8GijORN8kFq1OAAAAAvTA1YNCX-qDrkgbRyo-WBTs4tif6dmCNd6AEERk12Bhhsy6R4HryUln-k79wlV6-ZpfJVv1McUd_m7ZY26tNAvOy_8IAH7hrQ_zGik0SIFtJxq26L0L15EU4q5NKsiejKE4PsIELNQwvW7BasH8VI0K1A9Nz_PCKDB6axzkuuIUAAAAhetK_7v3d46KLtEarGGKQuT_2io](#)

Initially, we did control the server without authentication, but from a safety standpoint it is a nightmare, so I had to add the exchange of data authentication, which reduces visibility, but improves safety.

Now, if we press the Makecall button, we can see that the side RanderWEB transferred command of the form / api / rander / openline / 103/107 and then the token.

Thus, this page gives you the opportunity to understand how to manage the PBX using HTTP-Get requests.

You can try to duplicate these commands from the command line already WEB browser, be sure to following the format of the command shown on this page.

Where can I get HTML for use in their applications?

In any browser, it is possible to examine the code and see the insides of these test pages. In addition, using the HTML editor, you can open files

Chat.html

Index.html

Webapi.html

The source code of these files and .js files you can use in their applications.

What a licensed RanderWEB?

The application Rander WEB and demonstration applications do not require licenses, but because RanderWEB communicates with the server via the Rander RanCOM, for the normal functioning RanderWEB need a license to RanCOM Plus and additional control lines RanCOM, if you intend to work out a WEB application with a few lines.

Good luck and successful implementation of this technology!

Andrey Rabchewskiy