

jAReC mini

**(j)ava (A)udio and (Re)mote (C)ontrol
(command line version of jAReC)**

**A Java multiplatform application to securely make your
transceiver available for CAT and audio over the LAN or
WAN**

Version 0.8

Dan Toma - YO3GGX - yo3ggx@gmail.com

Contents

Introduction	2
Features	2
Limitations.....	2
The configuration file	3
Starting the application.....	3
Windows	3
Linux	5
Application history	5

Introduction

This is a light version (command line only) of JAReC application, which can be used to redirect one of your computer serial ports and one audio port to Ethernet. In this way you will be able to connect to any serial port (embedded, USB/Serial modules or Bluetooth modules) remotely over the network and transport audio too with a special client. Some of my Android applications, are able to serially connect over the Ethernet so this can be a nice addition. PocketRXTX Android application can use the secure authentication feature to securely connect and control (CAT) your radio transceiver over Internet, with audio support.

Features

Current version of the application has the following features:

- Can be run on Windows, Linux or Mac (with Java Runtime installed)
- Does not need a GUI, can be run on a system without graphical interface
- The application is fully portable, nothing is modified in the Registry and contains only the executable (JAR) and a simple text configuration file
- You can select any local serial port (COMx in Windows, /dev/ttySx or /dev/ttyUSBx in Linux, etc)
- You can select Audio In and Audio Out devices from a list. Audio feature is bi-directional, with a mic level meter for better control;
- Display your local IP address
- You can set the TCP port which will allow remote connections. Next TCP port is used for audio, if audio activated.
- Configurable Baudrate (from 110 to 921600)
- Auto server start at application startup (unattended)
- Auto disconnects if loosing link going back to “wait for connection” mode
- Can be easily scripted to be started at system startup

Limitations

Current version of the application has the following limitations:

- Configuration file must be manually edited or from the JAReC application GUI
- Not tested, but most probably work on Mac computers too.

WARNING!!!

Use this application on your own risk. I cannot be held responsible for any damage caused to your system.

The configuration file

Unzip the application package downloaded from my web site. You will get 2 files: jarecmini.jar and jsn.cfg. Ssecond one is the configuration file which you will need to manually edit. By default jsn.cfg contain some data which is not good for your system, to be used just as a template.

```
#Wed Sep 07 14:29:27 EEST 2015
bAutostart=false
bUseAuthentication=true
sHSecret=2743371E3828333B275A8FE65050595BF13DD669
sBaudrate=38400
bUseAudio=true
sCOMport=COM6
nwPort=4443
iRecInterface=5
iPlayInterface=0
```

Each parameter is self-explanatory. The authentication/encryption password (secret) is stored as a SHA-1 hash. To generate it based on the secret used in Pocket RxTx application, you can use an online tool, for example:

<http://www.sh1-online.com/>

Starting the application

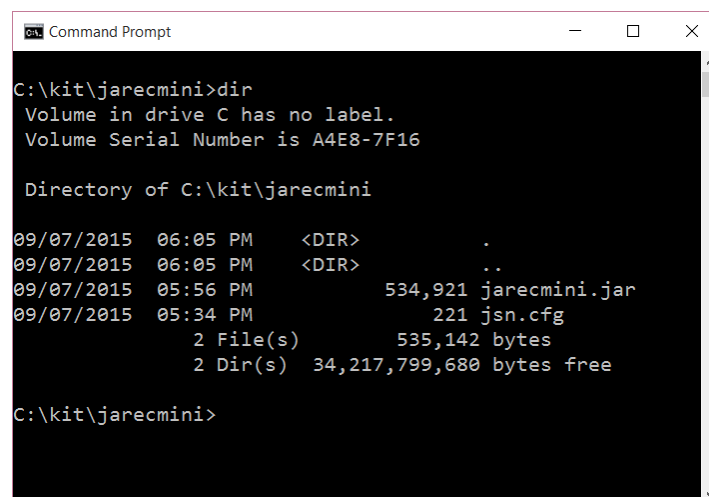
To use the application you must download the latest java runtime from Oracle (currently version 1.8.0_60).

When you first start the application with the default configuration file, take care that the parameter `bAutostart` to be set false. You will get the list of current settings and what is available on your system. To run it enter the following command:

```
java -jar jarecmini.jar
```

Windows

To start the application in Windows, open a DOS command prompt and go to the folder where jarecmini.jar and jsn.cfg file were saved.



```
Command Prompt
C:\kit\jarecmini>dir
Volume in drive C has no label.
Volume Serial Number is A4E8-7F16

Directory of C:\kit\jarecmini

09/07/2015  06:05 PM    <DIR>          .
09/07/2015  06:05 PM    <DIR>          ..
09/07/2015  05:56 PM                534,921 jarecmini.jar
09/07/2015  05:34 PM                 221 jsn.cfg
                2 File(s)      535,142 bytes
                2 Dir(s)  34,217,799,680 bytes free

C:\kit\jarecmini>
```

Run the command:

```
Command Prompt
C:\kit\jarecmini>java -jar jarecmini.jar
jAReC mini version 0.8.1

Current settings:
  COM Port: COM6
  Baudrate: 38400
  TCP port: 4443
  Use audio: true
  Play Interface: (0) - Primary Sound Driver
  Rec Interface: (5) - CABLE Output (VB-Audio Virtual
  Use authentication: true
  Secret: 2743C71E382833B277A8FE65050595BF13DD669
  *****

Available com ports:
  COM6

Available Audio IN devices:
  (03) Primary Sound Capture Driver
  (04) Microphone (Realtek High Defini
  (05) CABLE Output (VB-Audio Virtual

Available Audio out devices:
  (00) Primary Sound Driver
  (01) Speaker/HP (Realtek High Definition Audio)
  (02) CABLE Input (VB-Audio Virtual Cable)

If ok, set bAutostart=true in the jsn.cfg file and run again
C:\kit\jarecmini>
```

You will see a list of available COM ports, audio in and audio out devices. Please note the number before the name of the audio device you want to use (for both in and out).

Edit the configuration file (jsn.cfg) according to your needs. Keep `bAutoStart=false` and run again to check that you selected the right parameters. When ready, change `bAutoStart=true` and run again. The application will go to listening mode:

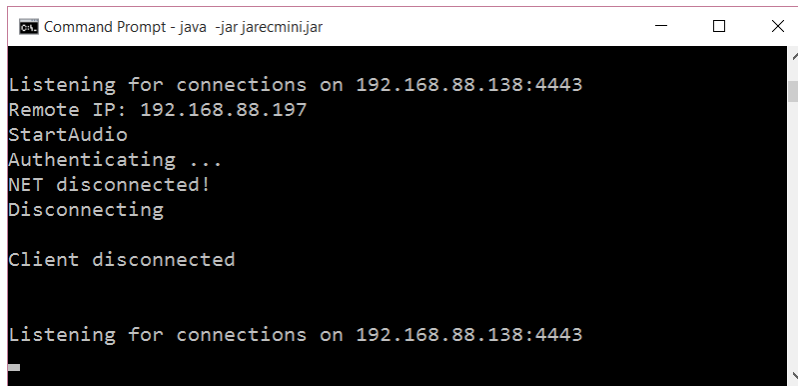
```
Command Prompt - java -jar jarecmini.jar
C:\kit\jarecmini>java -jar jarecmini.jar
jAReC mini version 0.8.1

Listening for connections on 192.168.88.138:4443
```

Start a connection from Pocket RxTx. Remote IP address will be displayed, audio will be started (if selected) and authentication performed (if selected).

```
Command Prompt - java -jar jarecmini.jar
Listening for connections on 192.168.88.138:4443
Remote IP: 192.168.88.197
StartAudio
Authenticating ...
Authenticated
```

You can now use the connection as usual. If you stop Pocket RxTx, then jarecmini will go back to listening mode.



```
Command Prompt - java -jar jarecmini.jar
Listening for connections on 192.168.88.138:4443
Remote IP: 192.168.88.197
StartAudio
Authenticating ...
NET disconnected!
Disconnecting

Client disconnected

Listening for connections on 192.168.88.138:4443
```

Linux

Using a terminal enter the following command when you are in the folder containing the program:

```
java -jar jAREC.jar
```

The operation is similar as with the Windows version.

You can simultaneously start several instances of the application, one for each serial port you want to access through the network. If you have multiple transceivers, you can start one instance of the application for each of them. The only requirement is to use different TCP port for each connection, in order to have unique sockets.

Serial Port can be not only a local physical serial port (like COM on the motherboard or USB/Serial interface) but even a virtual COM port, for example the one created by a Bluetooth interface. You can connect in this way to your Bluetooth device over the network.

Application history

Version 0.8.1 (Sep 7, 2014). *First public release of the application*

jARECmini_v0.8.pdf

Bucharest, Sep 7 2015 – © Dan Toma – YO3GGX – yo3ggx@gmail.com