Quote for a VHF/UHF contest robot IARU-R1

1 Introduction

IARU-R1 is since 2011 developing her own contest robot. A this time this was done on a nonprofessional base about project management.

IARU-R1 want to get control about their own contest robot. The actual contest robot is hosted on a server from OeVSV. The robot was elaborated by a professional software company, who is also used by DARC(Germany) and OeVSV(Austria). Due to former decisions of IARU-R1 the financing and the decisions are made by those 2 societies.

The executive Committee(further called EC) from IARU-R1 want to get full control of his own contest robot and hosted on our own server.

The EC now want to explore the possibilities to have different quotes from commercial and non-commercial organisations (Member Societies) to reuse the applications they already have elaborated for a reuse as a IARU-R1 contest robot on our own control.

2 System requirements.

Like we said we want full control of our software. We can start with a copy of an existing contest robot. This application should be placed on a own (virtual) server; including a development-, test and production environment.

Those different environments (except the development) are reachable with the IARU-R1 URL (example: https: www.contest.iaru-r1.org).

If it is hosted on your own (virtual) servers we have no problems with the system requirements.

If it should be hosted on our own server it need to be with those requirements:

- Linux Server version…
- php 7 or higher
- mysql

Our preference is to host it on your own system, so that there are no problems to install, manage and maintain the application.

VHFManager.net runs on PHP 7, mysql/mariadb latest versions. Hosting can be arranged on existing server.

3 Functional requirements

3.1 LOG upload

There should be two methods to upload the log:
- individual EDI upload by the participant
- ZIP upload by the national VHF/Contest manager

Log upload is possible in edi/zip format for everybody.

For both methods the LOG(s) would go through the following steps:
- check the validity of every QSO entry - OK
- recalculation of every QRB - OK
- recalculation of claimed QSO/PTS/ODX - OK
- check the validity of data in the EDI header - OK
- construction of "Clean" LOG - OK
- storing of "Original" and "Clean" log on the server - OK
- informing the LOG uploader about the upload status in an immediate feedback window and via email for individual uploader - OK
- via report file for the ZIP uploader - OK
- for both upload methods it shall be possible to upload the log of the same station several times, but only the last one will be valid. - OK

3.1.1 Algorithm:
- Check that SPowe contains a numeric value (power in watts used during the contest) with the ability to enter/correct it. Request the confirmation by clicking OK.
  - This function is bypassed if the log is uploaded in a ZIP file. If SPowe is empty, it will be classified in the hight power class

- LOG reception machine should then create a new EDI header based on the above supplied data and basically generate new LOG ("Clean LOG"). Both LOG versions, "Original LOG" and "Clean LOG" should be ZIP downloadable!
  - New EDI header should be created in the following way:
  - [REG1TEST;1]
  - TName= either "IARU R1 50/70 MHz" or "IARU R1 145 MHz" or "IARU R1 UHF/Microwaves"
  - TDate=DATE1;DATE2 (dates as defined in the contest setup on the server)
  - PCall= <as entered> or <as in the ZIP log>
  - PWWLo=<as entered> or <as in the ZIP log>
  - PExch=<empty>
  - PAdr1=<as in Original LOG>
  - PAdr2=<as in Original LOG>
  - PSect=<as entered> or <as in the ZIP log>
  - PBand=<as entered> or <as in the ZIP log>
  - PClub=<as in Original LOG>
  - RName=<as in Original LOG>
  - RCall=<as entered> or <as in the ZIP log>
  - RAdr1=<as in Original LOG>
  - RAdr2=<as in Original LOG>
  - RPoCo=<as in Original LOG>
  - RCity=<as in Original LOG>
  - RCoun=<as in Original LOG>
  - RPhon=<as in Original LOG>

- o RHBBS=<as entered> or <as in the ZIP log>
- o MOpe1=<as entered> or <as in Original LOG>
- o MOpe2=<as in Original LOG>
- o STXEq=<as in Original LOG>
- o SPowe=<as entered> or <as in the ZIP log>
- o SRXEq=<as in Original LOG>
- o SAnte=<as entered> or <as in the ZIP log>
- o SAntH=<as in Original LOG>
- o CQSOs=<as recalculated>
- o CQSOP=<as recalculated>
- o CWWLs=<empty>
- o CWWLB=<empty>
- o CExcs=<empty>
- o CExcB=<empty>
- o CDXCs=<empty>
- o CDXCB=<empty>
- o CToSc=<empty>
- o CODXC=<as recalculated>
- o [Remarks] <as in Original LOG>

Currently there is no step that EDI header could be corrected after upload. This feature is already in todo list.

3.2 Claimed score table

- Before individual participant <u>LOG upload deadline</u> only display CALL in alphabetical order – OK

- After <u>Contest-Admin ZIP LOG upload deadline</u>, display claimed standings per section (rank, CALL, UL, claimed PTS, claimed QSO)
  Currently it displays recalculated not claimed PTS and QSO data.

- if the logs are uploaded after the deadline, all should be classified as checklogs
  Currently there is no possibility to upload logs after deadline, can be arranged to upload checklogs or logs by managers.

3.3 Cross-check algorithm

Fact	Action
• Received Call matches another entrant; • Received Call there = this Sent Call; • Band/Mode are correct; • Time is correct +/- 15 mins; • Exchange Received matches Exchange Sent in other log (but Serial no. can be +/- 1). • Locator matches	QSO is good in this log.
• If the Received Call matches another entrant and all these conditions are met: • Received Call there is similar to this Sent Call(no more than two characters incorrect or missing); • Band/Mode correct; • Time correct +/- 15 mins; • Exchange Received matches. Exchange Sent in other log (but Serial no. can be +/- 1).	QSO is good in this log.

• Locator matches	
• If the Sent Call appears in another log without a matching Received Call in this log, and the QSO can be identified in this log, and this QSO has not already been declared good.	QSO is bad in this log
• If the Received Call matches that of another entrant and no matching QSO can be identified in the other log.	QSO is bad in this log -- not in log. Penalty applied -- loss of this QSO only.
• If a matching QSO can be identified in another log but the Received Exchange is incorrect (but Serial no. can be +/- 1).	QSO is bad in this log -- incorrect exchange.
• If a matching QSO can be identified in another log but either Time, Band, Mode or Locator do not match.	QSO is bad in this log -- incorrect logging.
• If the Received Call appears in other entrants' logs and is consistent with fabricated serial numbers, or is 001 or 000.	QSO is good in this log.
• If the QSO is good and is with the same station on the same band and mode as a previous good QSO.	loss of this QSO only.

Cross-check algorithm is the core of every contest robot. Basically VHFManager covers above rules. In my opinion result of any cooperation with any IARU contest robot programmer would have to be a set of detailed rules and procedures how to handle valid and invalid QSO.

Above rules are just starting point. There is a lot of decisions to be made.

Time correct +/- 15 mins - in VHFManager's handbook there is no mention about time accuracy.
Serial no. can be +/- 1 - Also there is no mention of serial number+-1 in VHFManager's handbook.

Every IARU contest has a contest evaluator who needs the possibility to overrule the automatic cross-check algorithm to edit an individual QSO as good or bad.

3.4   Score table
We need different view of the final results
OK
3.4.1   General table
Containing a global overview from all logs received and by clicking have a look at the log.
OK
3.4.2   Results table
Per category for one contest the final, judged results: with following items:
- **section as a title (= not in every row)**
- **rank**
- **CALL**
- **UL**
- **Cross-checked PTS**
- **Cross-checked QSO**
- **number of deleted QSOs**

- **error % of points**
- **Cross-checked ODX CALL**
- **Cross-checked ODX QRB**
- **Equipment: PWR (SPowe) + RTX (STXEq + SRXEq) + ANT (SAnte)**
- **Award print hyperlink**

OK
it should be possible to download the final score table as CSV and PDF per current selection
Not yet, but easily doable, already in plan.

3.5   Award printing facility
The competitor needs to have the possibility to download a certificate of his achievement. This is a downloadable PDF file with following details, on a fixed place:
- **Call**
- **Category**
- **IARU place**
- **National place**

The template can be uploaded by the administrator for each contest.
The background template (preferably SVG file) can be arranged to be uploaded.

3.6   Complete dump of QSO's
For crosschecking purposes or for datamining we need also the possibility to download all QSO's in a CSV file, containing following data:
- TX **call**
- **RX call**
- **Date**
- **Time**
- **TX WWL**
- **RX WWL**
- **RST send**
- **RST received**
- **Serial number send**
- **Serial number received**

Can be arranged.

3.7   Timing
Contests should be have a limit to upload individual logs, bulk upload, start evaluation and publishing final results. This should be done by a contest evaluator. He can also overrule the automatic cross-check if necessary
Currently there is a limit to upload individual logs, contest manager can upload logs & checklogs any time until cross-check is run. Cross-check routine is run manually. Additional roles would have to be defined (national contest manager).

4 Central log collection
All logs, collected by the robot will also serve for crosschecking the national contests organised in other Member Societies. Authorised VHF (contest) manager should be able to download the data collected by the robot, in particularly:

- The QSO data such as registered in the EDI file as QSO's
- The own call
- The own locator

There is need to have a function to download all logs for this purpose with respect of the privacy regulations. Those data can only be downloaded by authorized users such as VHF (contest) managers, members of the EC, etc.
This function will be available for the sub regional contests in March, May, June, July and the Marconi contest.
Those contests will not be evaluated (see 3.3.) but only stored and distributed to who is authorised.
Export of EDI logs is done, small fix would be for new user roles.

5 Privacy requirements.

5.1 Uploading individually

A disclaimer that the contester agrees that his log will be used for crosschecking with other contesters who participated to the contest. His personal data will only being used for contact if needed. Those private details will not be shared with others and will be deleted after publishing the final results.
OK

5.2 Uploading bulk

Only national VHF managers can upload bulk and we need following data:
- That this person is authorised to do this (login an password)
- The timestamp when he/she did this upload
- A checkbox confirming that he/she informed all his users that their log shall be sended to a central server and that their log will be used for crosscheck purposes by other MS, with respect of the privacy rules. If they are not consenting the log should be deleted by the national manager before upload.

Can be easily arranged.

5.3 Downloading logs for national crosschecking

This could be done in two different ways:
- Downloading the EDI files:
  If this method is preferred all privacy related data should be removed out of the header file (email address, addresses, name, etc..).
  Only the clean logs (see 3.1) should be available for downloading.
- As a table such as described in 3.6

Only national VHF (contest) managers, and other authorised persons can download this data and this should be logged (who and when).
OK
Just a thought: Do "clean" logs contain any sensitive information? If anyone would like to perform his own analysis can he obtain those logs?

5.4 Archiving and deleting

For statistical and historical purposes the tables such as defined in 3.6 should be saved.
Currently except personal data all other information is being preserved in database structure. It allows contest analytics and comparing station results and propagation between multiple years.

All EDI files should be deleted after the final results are known and the winners are informed by e-mail about the award ceremony. This can be done by the admin or the contest responsible. For the non IARU contest they should be deleted after 60 days. OK

6 Security

The application need to be secured with a SSL certificate (HTTPS URL).

6.1 Roles

- **Users**
  No login required, they can upload their own log and look/download public results.
- **National VHF managers**
  They can upload bulk logs and download impersonalised logs(see 5.3) or complete dumps (3.6)
- **Contest evaluators**
  Keeps track about timing and can overrule the contest algorithm.
- **Admin**
  Create new contests
  Give/delete rights to others
  Can create/edit/delete all parameters as defined in the EDI header, especially:
    - o TName
    - o PSect
    - o PBand
    - o Eventually other parameters(nice to have)

Some work needs to be done. My opinion is that if there is a need for contest evaluator to overrule contest algorithm, that rule should be applied to feature cross-check algorithm.

6.2 Security

For National VHF managers, contest evaluators and admin there is need of security by login/password and for the admin a second level (SMS,…).
There is need of a kind of logging about the activity made by this roles.
User/password login is implemented.

7 Organisational requirements

If we want to go further with your company/organisation we want to know following questions.

7.1 Technical questions

- Does your contest robot is managed by professional developers or by volunteers?
  Robot is being managed by me. I am self-employed as a developer and run robot mostly on volunteer base, partially funded by ZRS and other organisations that use my robot for their contests.

- Witch language are you programming it?
  PHP and JavaScript with MySQL.

- Witch change management system are you using?
  Git for local development.

7.2 Service level

- If the application is out of line what are the ways to inform you?
  Email, SMS, Phone call
- In how many time you can make the application available again?
  Depends on the problem. In last 10 years since robot is running I don't remember being down for longer time except for maintenance purposes.

8 Legal

We need a written agreement between IARU-R1 and the developer that:
- We can use a copy of the existing software on our own dedicated server or hosted by you
  I would prefer maintaining only one copy of running application on existing server.

- We have a copy of the source code by ending the contract or on request.

I don't see a problem of obtaining source code under some financial conditions.

9 Financial

9.1 Build a copy of your application on a dedicated (virtual) server

Like we asked we want a complete environment from your application on a dedicated (virtual) server were the IARU-R1 could change your existing software to our needs. This means a development, test and production environment.
So please send us a quote about this copy/move and a time schedule to implement this

I currently develop software for needs for ZRS. Majority of functionality is the same as currently in use. Robot was already used for IARU UHF SHF contest 2010, 44th Marconi Memorial International Contest 2016. Robot design also supports various other contest types such as S5 Activity (ZRS Maraton), local S5 HF (KVP) contest, WW PMC, log reception for EUHFC and was in use for SCC RTTY log reception... This guarantees versatility and that most function are working and only minor adjustments are needed.

If we agree on using VHFManager as IARU R1 robot it could be used in next contest season.

9.2   Change requests

If we need some changes in the actual software this will be done on time and material base. Material is not the major problem now, but need to be discussed. For software updates we need a quote for the price on an hourly base.
It would be useful to have a first estimation of the time you will need to adapt your software to our requirements

From the years of maintaining VHFManager I have learned that most time consuming process is cross-check algorithm. Some decisions made by managers can strongly influence on algorithm. Few years managers added Rover category to rules without thinking the consequences to cross check algorithm. Gladly category was not used by contesters and was revoked. That would have major impact on predictions about valid WWL and sent/received serial number.

Another source of request for algorithm changes are contesters and there claims for unjustified deletion of their QSOs. It takes a lot of time to explain and argument or fix the routine, but at the end those complaints are invaluable sources of information how accurate cross-check algorithm works.

One of advantages of VHFManager implementation is that contester can easily browse his and correspondent logs and can check every decision made by robot themselves. That leads to trust and errors or gray situations can be easily spotted. It is also easier to spot a station with bad intentions such as making up QSOs.

My offer to EC would be that I adapt VHFManager to needs by EC and R1 managers. Features described in this documents are either supported or reasonable to implement. My intention is to stay the owner and maintainer of the robot.

As monitoring current IARU robot and it's financing I don't believe full commercial approach would be feasible solution. Every quote on feature request and writing specification adds cost to a project. That's why my offer for EC would be: If we agree to long term cooperation, features in this document can be accounted into yearly maintenance fee. Yearly fee could cover reasonable request for changes.

We would need to define "reasonable" request, but in general those are any changes in VHFManager's handbook which would need to implement on national level. Unreasonable changes are those mentioned before such as adding Rover category… In any case of changing rules as decision maker I would think about impacts on their implementation.

I would suggest yearly maintenance fee of 1600€.

General quote for the price on an hourly base for this project would be 30€.

Prices are without VAT included, because Reverse Charge - VAT exempt under Article 44 Directive.

Both prices should be adjustable by yearly inflation or simmilar in long-term contract.

9.3   Hosting

If this application is running on your servers, we also need the price on a yearly base.
Currently price for web hosting is 120€/year but can be changed by hosting provider.

10   Deadline

We need your quote before 1 Septemberr 2020.
It need to be send by mail to ON4AVJ@uba.be and iv3kkw@gmail.com

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