

Quote for a VHF/UHF contest robot IARU-R1

1 Introduction

IARU-R1 is since 2011 developing her own contest robot. At 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.

Rob:

I have discussed the possible hosting of an IARU contest within the VERON ICT environment with the board of the VERON. The VERON has no options for this.

As indicated above, I think that an IARU contest robot should also be hosted in its own IARU environment . A group must be organized on top of the robot that is responsible for management, development and support. 1 person is in charge of the daily management. Knowledge and tasks must be distributed. A collaborative environment for the group should be set up for documentation (e.g. confluence) and

development / change (e.g. Jira). This is the only way to be in control. Also for the longer term.

I am willing to participate in this group when it comes to software development and practical contest experience.

Within the VERON we are currently using a VHF contest robot that I have developed. The robot has been in use without any problems since 2015, but still has a development status and is in my opinion not mature enough to be used in a larger organizational environment. The intention is that this robot will be included in the VERON ICT environment in a number of years.

I will compare the status of this robot with the requirements below of the IARU robot.

The contest robot works within a Linux environment with ssl web server, PHP7, Mariadb (mysql) and bash scripts.

The IARU can use the current software of our contest robot as long as it is used for vhf amateur radio and the tasks of the IARU contest workgroup (log collection and iaru vhf contest adjudication), but it comes as it is. The further development must take place in the group.

The comments in green text

3 Functional requirements

3.1 LOG upload

There should be two methods to upload the log:

- individual EDI upload by the participant. *Is possible*
- ZIP upload by the national VHF/Contest manager. *This needs to be further developed. Now bulk upload is only possible for the administrator.*

For both methods the LOG(s) would go through the following steps:

- check the validity of every QSO entry. *Yes*
- recalculation of every QRB. *Yes*
- recalculation of claimed QSO/PTS/ODX. *Yes*
- check the validity of data in the EDI header. *Yes, but only the fields that are relevant further down the process*
- construction of "Clean" LOG. *No, What is the definition of a 'Clean' log?*
- storing of "Original" and "Clean" log on the server. *The original logo is currently being preserved. The relevant data is loaded into the database and used there.*
- informing the LOG uploader about the upload status in an immediate feedback window and via email for individual uploader. *User will receive confirmation when log has been successfully loaded. If there are errors in the log, the user will receive direct feedback via the website. The log can then be corrected and resubmitted.*
- via report file for the ZIP uploader. *No. Can be added*
- 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. *Yes*

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 high power class *No. It is easy to add this. SPowe is only checked for required field and containing a number. Section is specified by user.*
- 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! *Ok clean log is new generated log based on validated data and only relevant data*
 - 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>
- RHBBs=<as entered> or <as in the ZIP log>
- MOpe1=<as entered> or <as in Original LOG>
- MOpe2=<as in Original LOG>
- STXEq=<as in Original LOG>
- SPowe=<as entered> or <as in the ZIP log>
- SRXEq=<as in Original LOG>
- SAnte=<as entered> or <as in the ZIP log>
- SAntH=<as in Original LOG>
- CQSOs=<as recalculated>
- CQSOP=<as recalculated>
- CWWLs=<empty>
- CWWLB=<empty>
- CExcs=<empty>
- CExcB=<empty>
- CDXCs=<empty>
- CDXCB=<empty>
- CToSc=<empty>
- CODXC=<as recalculated>
- [Remarks] <as in Original LOG>

This can be added

3.2 Claimed score table

- Before individual participant LOG upload deadline only display CALL in alphabetical order. Call, Locator, raw Claimed score and best dx are displayed. The reason is that stations want to compare immediately after the contest. Only showing call is possible.
- After Contest-Admin ZIP LOG upload deadline, display claimed standings per section (rank, CALL, UL, claimed PTS, claimed QSO) Yes
- if the logs are uploaded after the deadline, all should be classified as checklogs. No Now uploading after deadline is not possible.

3.3 Cross-check algorithm

Fact	Action
<ul style="list-style-type: none"> • Received Call matches another entrant; OK • Received Call there = this Sent Call; Ok • Band/Mode are correct; Ok. Mode is not checked. RS(T) is shekced • Time is correct +/- 15 mins; No check • Exchange Received matches Exchange Sent in other log (but Serial no. can be +/- 1). Ok, serial number must be equal. No +/- rule. • Locator matches Ok 	QSO is good in this log.
<ul style="list-style-type: none"> • 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 	QSO is good in this log.

or missing); Yes but calls must be correct/equal. /P etc is discarded <ul style="list-style-type: none"> • Band/Mode correct; Yes RS(T) is shecked • Time correct +/- 15 mins; No check • Exchange Received matches. Exchange Sent in other log (but Serial no. can be +/- 1). Ok, serial number must be equal. No +/- rule. • Locator matches. Ok 	
<ul style="list-style-type: none"> • 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. ok 	QSO is bad in this log
<ul style="list-style-type: none"> • If the Received Call matches that of another entrant and no matching QSO can be identified in the other log. ok 	QSO is bad in this log -- not in log. Penalty applied -- loss of this QSO only.
<ul style="list-style-type: none"> • If a matching QSO can be identified in another log but the Received Exchange is incorrect (but Serial no. can be +/- 1). Ok, serial number must be equal. No +/- rule. 	QSO is bad in this log -- incorrect exchange.
<ul style="list-style-type: none"> • If a matching QSO can be identified in another log but either Time, Band, Mode or Locator do not match. ok. Mode is not checked. RS(T) is shecked 	QSO is bad in this log -- incorrect logging.
<ul style="list-style-type: none"> • If the Received Call appears in other entrants' logs and is consistent with fabricated serial numbers, or is 001 or 000. Ok. No 001 or 000 rules. Serial number must match 	QSO is good in this log.
<ul style="list-style-type: none"> • If the QSO is good and is with the same station on the same band and mode as a previous good QSO. ok. No dupes 	loss of this QSO only.

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.

Yes

3.4 Score table

We need different view of the final results. **Each view can be made to specification such as based on fields in the database**

3.4.1 General table

Containing a global overview from all logs received and by clicking have a look at the log. **Yes It is possible to browse through the qso records. For the assessor it is possible to go through the log in different ways and immediately have the counter log. important for visual inspection**

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) Yes**
- **rank Yes**
- **CALL Yes**
- **UL Yes**

- Cross-checked PTS **Yes**
- Cross-checked QSO **Yes**
- number of deleted QSOs **Yes**
- error % of points **Yes**
- Cross-checked ODX CALL **Yes**
- Cross-checked ODX QRB **Yes**
- Equipment: PWR (SPowe) + RTX (STXEq + SRXEq) + ANT (SAnte) **Yes**
- Award print hyperlink **NO**

it should be possible to download the final score table as CSV and PDF per current selection **Yes**

Each participant will receive an error log in pdf with details about the rejected qsos and qsos that are not counted

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 contest robot has no facilities for Awards. This functionality must be added

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

Yes

3.7 Timing

Contests should 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

Yes

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 particular:

- 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.

There is no download facility for national contest managers. It can be added

5 Privacy requirements.

5.1 Uploading individually

A disclaimer that the contester agrees that his log will be used for crosschecking with other testers 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.

Yes

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.

The contesrobot only has edi bulk upload functionality for the administrator. A user interface for national contestmanger will have to be added

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).

No. This can be added

5.4 Archiving and deleting

For statistical and historical purposes the tables such as defined in 3.6 should be saved.

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.

This is now a manual task for the administrator.

6 Security

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

Yes

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:
 - TName
 - PSect
 - PBand
 - Eventually other parameters(nice to have)

No. The contest robot only knows the participant and administrator / contest manager as user. A layered authorization structure will have to be added

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.

See 6.1. All actions in the database are logged. All input and output actions are logged in a separate table. In this way you can also see which action has taken place for a contest.

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? The contest robot is maintained and developed by a volunteer
- Which language are you programming it? It is a combination of English and Dutch. All software is made in PHP7, mariadb (mysql) and bash. The entire contest evaluation procedure is performed on the database. PHP7 is only used for input and output of the data
- Which change management system are you using? There is limited change management because the organization is also small. Changes based on developments, own findings and user input are periodically implemented in the software. All changes are made in a development environment. Subsequently tested including regression test and passed on to the production environment. I myself have an ITIL diploma and presumably will (unconsciously) act according to these principles.

7.2 Service level

- If the application is out of line what are the ways to inform you? No There are no notification of system disruptions. This can of course be added
- In how many time you can make the application available again? Two server computers are available. A backup of the database is made every night. The second server also contains a copy of the current production software. In the event of failure, a switch can therefore be made. This is a manual action. It has been agreed that a system down of 3 days is allowed. That will of course be resolved within that time

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

Regarding the 2 bullets OK, but additional agreements are necessary as indicated at the top. The installation is the source code.

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 where 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

If a full server is available, the software can be installed within two weeks of the request. It should be noted again that it concerns software that is under development, which certainly still needs to be built in order to meet the requirements. A management and development organization must also be set up.

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

I think the group should consist of volunteers. For radio amateurs by radio amateurs. In a financial sense, the IARU must only provide the correct materials for hosting, development, documentation, change / release management and any expenses. In my opinion, a monetary compensation for development time is not relevant. Agreements must be made about lead times and maximum available manpower over a period.

9.3 Hosting

If this application is running on your servers, we also need the price on a yearly base.

Hosting is not part. See above

10 Deadline

We need your quote before 1 September 2020.

It need to be send by mail to ON4AVJ@uba.be and iv3kkw@gmail.com

Jacques Verleijen
Chairman C5 – IARU-R1