



Position: Intermediate Programmer Software Developer, Level 2
Reference #: 0022
Department: Defence Research & Development Canada
Security Clearance: N/A
Location: National Capital Region
Pay rate is negotiable
Contract Length: 1 year + 1 year
Language: English

Contract has been rewarded

Statement Of Work

1.0 TITLE

1.1 DEVELOPMENT OF SOFTWARE TOOLS FOR THE SETUP, OPERATION AND DATA PROCESSING FOR DRDC'S ELECTRONIC SUPPORT SYSTEMS

2.0 BACKGROUND

2.1 The Radar Electronic Warfare (REW) section at the Defence Research & Development Canada – Ottawa Research Centre (DRDC Ottawa Research Centre) has a number of projects that deal with the development of algorithms and procedures for the detection and recording of radio frequency (RF) signals transmitted by radar systems. The recorded data is processed to generate various aspects of these radar systems aligning with the Electronic Warfare context.

2.2 DRDC Ottawa has access to a number of RF digital recorder (RFDR) systems that are used to investigate the functionality of these algorithms and procedures. Some of these RFDR systems

are prototype units built at DRDC Ottawa using commercial off-the-shelf (COTS) modules. Other RFDR systems are operational systems built by Industry. The software tools currently used to operate these operational systems do not enable the complete functionality required by the REW projects, while the prototype RFDR units lack an integrated user interface for setup and operation.

2.3 Improving the efficiency in the use of these RFDR systems with new software tools and application program interface (API) development add-ons requires support with specialized expertise in the fields of software development, signal processing and engineering. This support service will be required by DRDC Ottawa on an “as and when required” basis to develop these software tools and API add-ons. The work to be performed must be in accordance with this requirement and as described in each Task Authorization (TA).

3.0 ACRONYMS

API Application Program Interface

COTS Commercial Off The Shelf

DRDC Defence Research and Development Canada

GFE Government Furnished Equipment

GUI Graphical User Interface

H/W Hardware

NCR National Capital Region

OEM Original Equipment Manufacturer

REW Radar Electronic Warfare

RF Radio Frequency

RFDR Radio Frequency Digital Recorder

SDK Software Development Kit

SOW Statement of Work

SRCL Security Requirements Checklist

4.0 TASKS

The Contractor must provide one (1) Programmer / Software Developer, Level 2, “as and when required” over the term of the Contract. The resource is required to complete the following tasks, but not limited to:

4.1 Software Development, Data Processing and Integration

4.1.1 The resource will be required to develop, integrate and document original computer code for the setup and operation of Hardware (H/W) modules in C, C++ and Matlab in an integrated graphical user interface (GUI) environment to support research into the detection and recording of radio frequency (RF) signals transmitted by radar systems.

4.1.2 Using various Software Development Kits (SDKs) provided by the vendors of the H/W modules constituting an RFDR.

4.1.3 Producing detailed documentation, using MS Office tools, of the developed source codes to allow for the incorporation of new hardware features, debugging tools, and software updates that may be developed by either the module OEMs or scientific staff at DRDC.

4.1.4 Integrating data analysis software tools developed by DRDC into the main GUI setup and operation tool.

4.1.5 Managing of data recordings and the generation of performance and diagnostic logs generated by the H/W modules.

4.1.6 Develop software modules to assign accurate time-stamping to all recorded events.

4.1.7 Develop API tools to interface with the OEM software to produce customized analysis and display of the recorded data.

4.1.8 Apply the output of data manipulation algorithms on dedicated display image. (e.g. RF emitters location displayed on a geographical map).

4.1.9 Develop signal processing algorithms as required and as needed.

4.1.10 Perform configuration management of software source code.

5.0 DELIVERABLES

5.1 Produce documentation on the implementation of tasks as specified in each TA, using DRDC reporting template, and as per the requirement of the Technical Authority

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5.2 Produce technical reports, using MS Office, discussing the results of tasks in each TA, using DRDC reporting template, and as per the requirement of the Technical Authority.

5.3 All software including source and executable code with all relevant source and compilation options documentation developed under each TA.

6.0 CONSTRAINTS

6.1 Any foreground information must be fully disclosed and documented by the Contractor in the technical reports delivered by the Contractor to the Technical Authority under this Contract.

7.0 LOCATION OF WORK

7.1 The work must be performed at DRDC Ottawa Research Centre:
Defence Research and Development Canada - Ottawa Research Centre
3701 Carling Avenue,
Ottawa, Ontario
K1A 0Z4
Canada

8.0 MEETINGS

8.1 Within two weeks from contract award or issuance of a TA, the Technical Authority will meet with the resource to discuss the work details.

8.2 Any meetings required by the Technical Authority will be communicated to the resource via email or specified in the TA.

9.0 GOVERNMENT FURNISHED EQUIPMENT (GFE)

9.1 DRDC Ottawa Research Centre will provide the hardware, tools, and documentation required for the development of the required software tools and API add-ons to produce the outputs specified in each TA. DRDC Ottawa Research Centre will support and maintain all GFE. The list of GFE will be identified under the individual TA issued pursuant to this Contract, as applicable. GFE may include, but is not limited to:

9.1.1 Desktop computer;

9.1.2. Software Development Kits (SDKs) and licenses for the OEM hardware modules used if available from the OEM;

9.1.3 Associated software development tools and licenses, including MS Visual Studio and MATLAB;

9.1.4 Access to the DRDC RFDR systems; and

9.1.5 MS Office tools and related templates to be used in documentation.

9.2 GFE may include controlled goods, controlled technical data and/or classified materials. Any controlled goods, controlled technical data or classified materials provided by DRDC Ottawa Research Centre must remain under positive control at the DRDC Ottawa facility throughout the duration of the contract.

9.3 The Contractor must return all GFE to the DRDC Ottawa Research Centre facility on completion of the Contract. The Contractor must return all GFE to the DRDC Ottawa Research Centre facility on request by the Technical Authority.

Mandatory Criteria

<p>MT1 The Bidder must demonstrate that its proposed resource has a minimum of 60 months of working experience in the last 120 months as a Programmer / Software Developer.</p>	
<p>MT2 The Bidder must demonstrate that its proposed resource has a minimum of a Bachelor Degree in one (1) of the following fields:</p> <ul style="list-style-type: none">- Electronic Engineering; OR- Computer Engineering; OR- Computer Science; OR- Mathematics; OR- Physics	<p>The necessary documentation to support the bid in meeting this criterion must include a copy of a degree/diploma/certificate or other verifiable proof. Any copy of a degree/diploma/certificate should be included in the bid submission</p>
<p>MT3 The Bidder must demonstrate that its proposed resource has a minimum of 60 months of experience, working in EACH of the following six (6) out of eight (8) areas, within the last 84 months:</p> <ul style="list-style-type: none">- Software programming;- C, C++, and MATLAB programming;- Application Programming Interface (API) development;- GUI development;- MS Visual Studio;- MS Office Applications: Word, PowerPoint, and Excel;- Radio Frequency Applications; and- Signal processing.	

Point Rated Criteria

Minimum required points: 30% to pass

#	Rated Requirements	Scoring Method	Max Score	Bid Preparation Instructions
One (1) A.1 Application / Software Developer, Level 2				
RT1	<p>The Bidder should demonstrate that its proposed resource has a Master’s Degree or Ph.D. in one (1) of the following fields:</p> <ul style="list-style-type: none"> - Electronic Engineering; OR - Computer Engineering; OR - Mechanical Engineering; OR - Computer Science; OR - Mathematics; OR - Physics <p>The Degree must be from a recognized* Canadian Academic Institution/Organization (or the equivalent as established by a recognized* Canadian academic credentials assessment service, if obtained outside Canada).</p> <p>*The list of recognized organizations can be found under the Canadian Information Centre for International Credentials web site: http://www.cicic.ca/2/home.canada</p>	<p>Master’s Degree = 20 points</p> <p>Ph.D. = 40 points</p>	40	
RT2	<p>The Bidder should demonstrate that its proposed resource has more than 24 months’ experience in C OR C++ programming.</p>	<p>≥ 24 to 36 months = 10 points</p> <p>>36 to 48 months = 20 points</p> <p>> 48 to 60 months = 30 points</p> <p>> 60 to 72 months = 40 points</p> <p>>72 to 84 months = 50 points</p> <p>84+ months = 60 points</p>	60	

<p>RT3</p>	<p>The Bidder should demonstrate that its proposed resource has more than 24 months' experience in MATLAB programming</p>	<p>≥ 24 to 36 months = 10 points</p> <p>>36 to 48 months = 20 points</p> <p>> 48 to 60 months = 30 points</p> <p>> 60 to 72 months = 40 points</p> <p>>72 to 84 months = 50 points</p> <p>84+ months = 60 points</p>	<p>60</p>	
<p>RT4</p>	<p>The Bidder should demonstrate that its proposed resource has more than 24 months' experience integrating software with Application Programming Interfaces (APIs).</p>	<p>≥ 24 to 36 months = 10 points</p> <p>>36 to 48 months = 20 points</p> <p>> 48 to 60 months = 30 points</p> <p>> 60 to 72 months = 40 points</p> <p>>72 to 84 months = 50 points</p> <p>84+ months = 60 points</p>	<p>60</p>	
<p>RT5</p>	<p>The Bidder should demonstrate that its proposed resource has more than 24 months' experience in the development of software tools for hardware setup and control.</p>	<p>≥ 24 to 36 months = 30 points</p> <p>>36 to 48 months = 40 points</p> <p>> 48 to 60 months =</p>	<p>80</p>	

		<p>50 points</p> <p>> 60 to 72 months = 60 points</p> <p>>72 to 84 months = 70 points</p> <p>84+ months = 80 points</p>		
RT6	The Bidder should demonstrate that its proposed resource has a minimum of 24 months' experience in the development of software tools using OEM Software Development Kits (SDKs).	<p>≥ 24 to 36 months = 30 points</p> <p>>36 to 48 months = 40 points</p> <p>> 48 to 60 months = 50 points</p> <p>> 60 to 72 months = 60 points</p> <p>>72 to 84 months = 70 points</p> <p>84+ months = 80 points</p>	80	
RT7	The Bidder should demonstrate that its proposed resource has a minimum of 24 months' experience in the development of Graphical User Interface (GUIs).	<p>≥ 24 to 36 months = 10 points</p> <p>>36 to 48 months = 20 points</p> <p>> 48 to 60 months = 30 points</p> <p>> 60 to 72 months = 40 points</p> <p>>72 to 84 months = 50 points</p>	60	

		84+ months = 60 points		
RT8	The Bidder should demonstrate that its proposed resource has a minimum of 24 month's experience in the development of software applications to support the management of associated data sets originating from multiple sources.	<p>≥ 24 to 36 months = 30 points</p> <p>>36 to 48 months = 40 points</p> <p>> 48 to 60 months = 50 points</p> <p>> 60 to 72 months = 60 points</p> <p>>72 to 84 months = 70 points</p> <p>84+ months = 80 points</p>	80	
RT9	The Bidder should demonstrate that its proposed resource has a minimum of 24 months' experience developing software in the MS Windows environment using MS Visual Studio.	<p>≥ 24 to 36 months = 10 points</p> <p>>36 to 48 months = 20 points</p> <p>> 48 to 60 months = 30 points</p> <p>> 60 to 72 months = 40 points</p> <p>>72 to 84 months = 50 points</p> <p>84+ months = 60 points</p>	60	
RT10	The Bidder should demonstrate that its proposed resource has a minimum of 24 months' experience developing software in the Unix environment.	<p>≥ 24 to 36 months = 15 points</p> <p>>36 to 48 months = 20 points</p>	40	

		<p>> 48 to 60 months = 25 points</p> <p>> 60 to 72 months = 30 points</p> <p>>72 to 84 months = 35 points</p> <p>84+ months = 40 points</p>		
RT11	The Bidder should demonstrate that its proposed resource has a minimum of 24 months' experience performing configuration management of software (software version control).	<p>≥ 24 to 36 months = 15 points</p> <p>>36 to 48 months = 20 points</p> <p>> 48 to 60 months = 25 points</p> <p>> 60 to 72 months = 30 points</p> <p>>72 to 84 months = 35 points</p> <p>84+ months = 40 points</p>	40	
RT12	<p>The Bidder should demonstrate that its proposed resource has a minimum of 24 month's experience working in the Radio Frequency (RF) Systems and Applications, for example, but not limited to:</p> <ul style="list-style-type: none"> - Design and setup of digital and/or analogue RF receiver systems; - Development of software and hardware tools to setup and operate RF systems. 	<p>≥ 24 to 36 months = 30 points</p> <p>>36 to 48 months = 40 points</p> <p>> 48 to 60 months = 50 points</p> <p>> 60 to 72 months = 60 points</p>	80	

		>72 to 84 months = 70 points 84+ months = 80 points		
RT13	<p>The Bidder should demonstrate that its proposed resource has a minimum of 24 month's experience working in the Signal Processing domain and Applications, for example, but not limited to:</p> <ul style="list-style-type: none"> - Use of signal processing procedures such as Fourier Transformation. Filtering, Cross-correlation, windowing on digitally recorded signals; - Sorting and analyzing time-domain and frequency-domain data. 	<p>≥ 24 to 36 months = 30 points</p> <p>>36 to 48 months = 40 points</p> <p>> 48 to 60 months = 50 points</p> <p>> 60 to 72 months = 60 points</p> <p>>72 to 84 months = 70 points</p> <p>84+ months = 80 points</p>	80	
RT14	<p>The Bidder should demonstrate that its proposed resource has experience authoring a minimum of two (2) high quality technical documentation using designated client specific templates in MS Word.</p> <p>The Bidder should provide a minimum of two (2) of the reports, requirements documents, or design documentation (no longer than 12 pages each); OR excerpts of up to 500 words from a minimum of two (2) different reports, or requirements documents, or design documentation authored by its proposed resource.</p> <p>Confidential information may be redacted as necessary.</p>	<p>2 technical documents = 4 points</p> <p>4 technical documents = 6 points</p> <p>6 technical documents = 8 points</p> <p>8 technical documents = 10 points</p> <p>10+ technical documents = 12 points</p>	12	
Maximum Points Available:			832	
Minimum Score Required:			335	

