**Open Source Reference Implementations of
SCA Compliant Waveforms using OMG Waveform
APIs Request for Proposals**

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Re: Call For Open Source Reference Implementations of SCA Compliant Waveforms using OMG Waveform APIs

1 Background

The role of the SDRF includes encouraging development of SDR technologies and promoting educational activities to encourage deployment of reconfigurable radios. To further that agenda, SDRF wishes to make one or more reference waveform implementations available on the SDRF Web Site, enabling SDRF members to download an example waveform and use it with the Core Framework of their choice. The reference implementation will demonstrate the use of an MDA [1] based waveform development process.

Members are encouraged to create waveforms utilizing the recommended common API structures, thereby validating waveform portability to various hardware platforms and operating systems. The implemented waveforms shall be interoperable with SDRF's reference implementation of JTRS SCA CF V2.2 [2, 3].

2 Goals and Objectives

The Software Defined Radio Forum has identified a subset [4] of OMG SWRadio Waveform APIs [5] that are of interest to the group members, and recommend the responders to the RFP use this subset. The subset is not mandated but will be a criterion for evaluation (see below).

The following are the basic waveform requirements:
- Simple enough to implement in a cost effective manner in the time allowed
- Complex enough to show API functionality
- Not requiring high levels of processing power
- Open waveform specification

The following are the basic platform requirements:

- Currently available PC based laptop

The following are the requirements for the development environment:
- Currently available software development tools

3 Request for Proposals

This document constitutes a request for proposals for Open Source Reference Implementations of SCA Compliant Waveforms using OMG Waveform APIs.

This RFP becomes officially released as of the date of its posting on the SDRF web site, and proposals will be due within 30 days of the official release.

4 Contract Evaluation

SDRF will establish a team of proposal evaluators. This team of evaluators will establish selection criteria against which proposals will be judged. Selection criteria will include:

1) Delivery Schedule
2) Cost effectiveness
3) Value to the Industry
   a. Choice of implementation language
   b. Portability to other platforms
4) Compliance with the SDRF's current version of JTRS SCA CF 2.2
5) Ability to provide support to answer industry questions
6) Demonstration of the following at a minimum but not limited to:
   a. Interface to the RF Front End
   b. Mode selection
   c. Interface to the I/O
7) Quality of documentation offered
8) Demonstrated ability to perform development, publication, and demonstration
9) Agreement to provide SDRF the right to publish documents relating to the waveform implementations on the SDRF Web site, including freedom from constraints with respect to any Intellectual Property Rights therein (no patents or data rights apply to the published material)

SDRF will hold all proposals confidential. Proposals from bidders that are not selected will not be made public. SDRF will review all offered proposals, negotiate with one or more vendors, and make awards within 120 days of the official RFP posting. Upon submission of any proposal, SDRF shall own the all copyrights thereto and, to the extent any such proposal is based on Intellectual Property Rights held by third parties, SDRF shall require the contributing party to provide such licenses as may be necessary for SDRF to evaluate the proposal, and if adopted, to enable members of the industrial community to use and demonstrate the implementation of that proposal without any license and without paying any royalties or other fees.

5 Proposal Content and Format

All proposals are due 30 days after official release of this RFP on the SDRF web site. All proposals must also include:
1) Specification of the waveform being offered for implementation
2) Description of the rationale for waveform selection
3) Detailed description of the APIs that will be used to implement the waveform
4) Date of submission and period of validity for the proposal
5) Description of all proposed deliverables, documentation and source code
6) Schedule for each deliverable milestone
7) Description of coding standards
8) UML diagrams showing API usage
9) Documentation available and planned for delivery
10) Proposed payment plan associated with each deliverable milestone
11) Discussion of, or source of any cost sharing
12) Detailed development schedule
13) Method for validation
14) Method for demonstration
15) Description of method of providing industry support (if any)
16) Description of tools required by a user who wishes to reproduce the demonstration
17) Method for oversight and progress review by SDRF committee
18) Data rights transfer statement; representations that neither the offerer's contribution nor the resulting reference implementation (if SDRF adopts the proposal) infringe or will infringe any third party Intellectual Property Rights; warrantee and certification that no Intellectual Property Rights of, or obligation to pay royalties or other compensation or fees to, the offerer or any third party is, or will be, bound into use of the reference waveforms.
19) Curriculum Vitae of critical personnel
20) Description of proposing organization
21) Name, address, phone number, fax, email for Contractual Interface point of contact

6 Deliverables

The vendor shall deliver incremental and final versions of the following according to his proposed milestone plan:
1) Code convention
2) Waveform Specification
3) Source code of the waveform implementation
4) Design documentation including UML diagrams, PIM and PSM
5) SCA Domain Profile documentation including XML and IDL files
6) Document describing platform SW/HW requirements
7) Document describing the building and installation procedures
8) Document containing the instructions to run the waveform application
9) Demonstration to the SDRF community

All deliverables shall include tracking item reference code to trace each deliverable item to the corresponding item description from the offerer's proposal. All items shall be delivered in soft copy format to:

Contract RI-WF-SCA22
Attention: Allan Margulies
Chief Operating Officer
SDRF
1616 17th Street   Suite 264
Denver CO 80202

7 Contract

All contracts awarded under this RFP will be subject to terms and conditions set forth in a definitive final agreement mutually acceptable to the vendor and SDRF and will provide for payment on a firm fixed price basis. Progress payments will be negotiated that reflect delivered value to the SDRF, where all requirements have been met.
SDRF does not guarantee that any response to this RFP will result in a contract, or that any contracts will be awarded. SDRF may also choose to award more than one award should there be several adequate proposals each with unique value. SDRF does have available resources set aside for this activity, and intends to perform this work.
All deliverable documentation will be in English. Machine readable documentation must be based on standard tools popularly available throughout the radio development and software industry. Microsoft Office, Adobe Acrobat, IBM Rational products, and Mathworks products shall be used for deliverable documentation.

8 Glossary

Acronym	Definition
API	Application Programming Interface
CF	Core Framework
IDL	Interface Definition Language
JTRS	Joint Tactical Radio System
MDA	Model Driven Architecture
OMG	Object Management Group
PIM	Platform Independent Model
PSM	Platform Specific Model
RFP	Request For Proposal
SCA	Software Communications Architecture
SDR	Software Defined Radio
SDRF	Software Defined Radio Forum
UML	Unified Modeling Language
XML	Extensible Markup Language

References

1. Model Driven Architecture: *http://www.omg.org/mda/*
2. JTRS SCA: *http://jtrs.army.mil/sections/technicalinformation/fset_technical_sca.html*
3. SDRF SCA CF Reference Implementation: *http://www.crc.ca/en/html/rmsc/home/sdr/projects/scari*
4. SDRF Waveform API Subset: *SDRF Document SDRF-04-I-0070-V0.00*
5. OMG SWRadio Specification: *http://www.omg.org/cgi-bin/doc?dtc/04-05-04*