IARPA Answers to Questions from the SCISRS Proposers' Day Meeting

Introduction:

IARPA has collected all the questions that were submitted to us prior to the SCSIRS Proposers' Day, as well as those that were submitted using the Q&A function during the Proposers' Day briefing. Questions are numbered in the order in which they were addressed during the Proposers' Day. Where questions are similar, we have grouped them together in this document. This grouping does not necessarily reflect the chronological order in which questions were answered.

Questions about Proposals:

1) How many awards will there be?

How many Awards are expected to be made?

What is the overall budget for this initiative? For example, what is the total expected funds allocated across all Performers?

What is the overall budget for this program?

IARPA does not set budgets for research programs before proposal review and recommendations for selection have been made. When preparing your proposal, include all the costs to develop your solution to the challenge posed in the BAA. Funding decisions will be made on the basis of technical evaluation and availability of funding. IARPA expects to make multiple awards. We intend to make multiple awards.

2) Can there be only a single submission from each contractor? Are submissions by CAGE code within one company?

Proposals must address the entire scope of the program described in the BAA. If a single company can address the entire scope then a proposal with that single Performer would be acceptable. Please see the BAA for instructions related to identifying CAGE codes.

3) Are partial solutions allowed, or do Performers need to provide complete solutions that address all the Technical Challenges?

Must all Technical Challenges be addressed?

Do you expect to award only to complete teams or will you award to niche companies?

Proposals must address the entire scope of the program described in the BAA. If an Offeror is able to provide only a partial solution, the Offeror may seek to team with another organization toward a complete solution.

4) When do you anticipate publishing the BAA for proposal response?

Will this be a 2 step BAA or is IARPA expecting a full proposal up front?

11) Is there a plan to include a concept paper/ whitepaper stage in the proposal submission process?

We do not have a specific date set for the publication of the BAA. Currently we are expecting to have this be a single submission rather than having a white paper phase, but that could change. We encourage you to seek guidance by reading the final BAA.

Intellectual Property Questions

5) How will Intellectual Property claims be assessed as part of the evaluation?

How will IP be viewed?

Can we bring IP algorithms, or do you expect all data to be Government Purpose Rights (GPR) at the end of the program?

See the BAA for information regarding the Government's requirements as it relates to the rights received to deliverables. SCISRS contracting will be in accordance with the FAR, which requires Unlimited Rights. Exceptions include solutions that incorporate components developed entirely at private expense. In these cases, limited rights may be negotiated as part of the contract negotiation. Another exception would be if the proposal contemplated cost sharing which, similarly, would be the subject of negotiation before contract execution.

Performers are responsible for providing their best solution. IARPA cannot waive the requirements of export control, ITAR or other statues. It is the proposer's responsibility to ensure their proposal complies with U.S. laws and regulations.

General Procedural Questions:

6) Our question is with whom will the Capabilities Statement be shared, with just government or will it be posted for other potential proposers to see as well?

As an option to facilitate teaming, potential proposers may submit a Capabilities Statement. It is not required, and we will not necessarily post it, but there is a 5 page maximum, 12 point font with 1 inch borders and a completed Teaming Information Form (posted with this notice) to IARPA for possible posting on our website at https://www.iarpa.gov/index.php/research-programs/scisrs. Deadline for these submissions is August 28, 2020 at 5:00 pm EDT. This information will not be reviewed or considered by the government for any purpose other than review for appropriate content.

There was a corollary question about whether IARPA requires teaming, and the answer to that was IARPA encourages teaming, but it is not required.

CORRECTION: At Proposers' Day, it was stated that IARPA would publish on its website the contact information of registrants who indicated their willingness to have their contact information made available to other participants. IARPA has instead made the contact information available via email.

7) Do we need to register with you to gain access to: a recorded video of the meeting will be made available to the public on the IARPA website at https://www.iarpa.gov/index.php/research-programs/scisrs

It is our intent to post a video transcript of today's event on the IARPA web site which is open to the public.

8) Will there be any classified aspects to this program?

Are there any special security requirements during the development of the phases?

Is the testbed provided data expected to be classified? What portions of this program (if any) are expected to require performer SCIF space?

Does IARPA anticipate the submission of unclassified or classified proposals?

Can our proposal include classified material? If so, are there any restrictions on level? Will there be a provisional class guide with the BAA?

The BAA contemplates a completely unclassified program. The SCISRS testbeds will only allow unclassified testing. IARPA may decide to receive classified information attached to proposals, but a final determination has not yet been made. Please refer to the final BAA.

9) When are slides and questions due?

To the extent that the purpose of submitting capabilities slides is to exchange information with other potential performers for the purpose of teaming, we encourage you to submit capabilities slides early. The deadline for submissions is August 28, 2020 at 5:00 pm EDT.

IARPA is interested in your feedback on the draft technical portion of the BAA up until the final BAA is published. Again, earlier is preferred.

The closing date for asking questions in response to the BAA once it is published will be published in the BAA.

10) Is the SCISRS program a result of a previous seedling effort?

No.

12) When is the targeted time frame for the BAA announcement?

We have not set a date for release of the BAA. After today (August 20, 2020) we will assemble feedback and make any indicated modifications to the draft BAA.

13) What timeframe will be given for proposal submittals once the final BAA is published?

What is the anticipated proposal submission deadline?

Those questions will all be answered in the final BAA.

Technical Questions:

A. TESTBEDS

14) Are the T&E testbeds already decided or would you be open to a Performer's funding be partly or mostly for shaping an existing testbed to work for this purpose?

Will each node in the testbed be identical?

Will all sources within a testbed transmit with some periodicity? Will maximum transmit interval be shared with performers?

The testbeds are under the sole purview and control of IARPA's independent T&E team to ensure fair and objective T&E. Performers will have the opportunity to visit the testbeds early in each phase and to suggest potential changes.

15) Will the different SDRs have unique APIs or will they support industry standards such as VITA 49.2?

We anticipate that our T&E team will provide the APIs for any SDR to be used in the program.

16) How much lead time will have performers have for when changes to SDRs and/or other hardware in the test beds occur?

The exact lead time is to-be-determined. One purpose to the "surprise hardware" construct is to incentivize performers to develop solutions that are hardware agnostic, so expect times to be short and potentially to get shorter as the program progressed into later phases.

17) Am I correct to infer that front end SDRs (antenna, tuners, digitizers) will be provided and performers need to be able to work with a variety of different hardware? What about the back-end processing? Can performers bring their own host servers to the testbeds?

Any limitation on the types of hardware we would like to use? Any cost constraint for such hardware?

Please refer to the final BAA. Performer deliverables will be software solutions that command and control IARPA provided hardware to detect and characterize different signals.

The program will utilize a testbed for testing and evaluation. The testbed configuration will be described at program kickoff. Front end hardware will differ from back-end processors. We expect the final BAA will identify a representative back end processor (compute platform) for planning purposes.

The draft BAA also contemplates performer volunteered SDRs. Refer to the BAA about suggestions to changing or modifying proposed testbed infrastructure.

18) If the testbed is not using an RF/SDR front end but is using networked data streams, how will the data be organized? Multi-channel? Phase coherent?

The Testbed will use a RF/SDR front-end. Streams from the front-end will be synchronized and phase coherent. In an attempt to maximize throughput, one stream per sensor is our model; i.e., no multiplexing of streams.

B. METRICS/T&E

19) Section 1.F lists potential metrics for evaluating detection accuracy. Is reporting time also expected to be a factor for evaluation, or is speed not considered critical given the expected use cases?

Will there be a metric related to processing latency?

Because RF Emitters continuously transmit across the spectrum and back-end processors have finite storage and processing, near-real time analysis is implicit in the SCISRS problem formulation and execution. Please refer to the final BAA when posted.

28) The increased use of mmWave (e.g. 5G) and sub-THz signals (e.g. 6G) that use directed, narrow beams makes them hard to detect. Is this something that could be part of the scope of the SCISRS?

Yes, 5G and 6G would be in scope.

29) What level of confidence are you targeting for these metrics?

As currently written in the draft BAA, the metrics do not require a confidence score. Please refer to the final BAA.

30) Are we authorized to decode ambient signal information under the scope of this investigation in light of the wiretapping laws?

No demodulation will be permitted. All U.S. laws concerning RF Signals will be followed.

C. DATA/BASELINE

20) Will development data be provided with "ground truth" labels for all signals present in the RF baseline, LPI, and mimics? By ground truth we mean: Time-frequency bin labels such as the metadata + signal type + device type, etc.

The Government may provide exemplars and/or I/Q snapshots at Kick-off. Performers will be afforded the opportunity to ask questions of the T&E team during SCISRS testbed visits. During these visits, Performers will be able to observe the kinds of devices resident in each testbed.

21) Will data sets be made available for our systems to train on, or we are responsible to generate these signal data sets?

Example data from testbeds will be provided to train. The expectation is that Performers will use their own environment and synthetic augmentation to fully research, develop, and test algorithms. The goal should be that the Anomalous Signal is one not seen in the training data set.

D. DEFINITIONS

22) The draft documentation defines a mimicked signal as one that uses the waveform of a known, overt signal but is 'misleading or unrecognizable to the protocols established to receive them.' I read this to mean that the internals have been modified (e.g. different sync or framing). However, GPS spoofing is mentioned later in the document; is spoofing considered a form of mimicry?

Yes, we would categorize spoofing as mimicry.

23) Would you group LPI and Mimic together since you could have different time scales for different information sources? If a Mimic was using an LTE carrier to send LPI information?

No, we would not group LPI and mimic together.

24) Are covert channels hidden within overt signals within the scope of threats?

Yes, covert channels within Overt Signals would be in scope. Please check the final BAA.

E. RFMLS vs SCISRS

25) I understand the hardware differences, but from a software and classification engine perspective, what are the major differences between this program and the RFMLs tasks that focus on signal classification?

> **I understand the heritage and foundational nature where RFMLS provides a technical basis for SCISRS, but what does IARPA view as the key areas for innovation that will come from SCISRS that are not currently being served by RFMLS?**
>
> **Can we get that system (RFMLS) as GFE/GFI, and do you prefer we implement and use it autonomously?**

RFMLS is focused on classifying a constrained, finite set of signal types. SCISRS is focused on classifying normal versus anomalous behavior of Signals. This is a subtle but important distinction At present, IARPA does not plan to distribute any GFE for this program. We do plan to provide GFI, that is APIs, training data, and information about the testbed infrastructure.

26) Can the final presentations and final reports from RFMLS be provided to potential Proposers for SCISRS?

Performers interested in results from RFMLS are referred to DARPA.

27) You mention RFMLS as foundational. Is LADS also considered foundational?

LADS is certainly related to SCISRS.

F. Processing

31) Can you detail a bit more on the target platforms you would like covered? There are so many choices from smaller ARM platforms to larger server-based platforms to FPGA-based systems.

When you say "hardware agnostic" are you mainly referring to the RF hardware, or are you also referring to the hardware used by the solution to compute the report, e.g., CPUs, GPUs, TPUs, etc.?

Is the need for a NVIDIA GPU considered hardware agnostic?

As used in the draft BAA, the term hardware in "hardware agnostic" refers more to the SDR hardware IARPA will use for T&E. In other words, the software solution Performers develop must be portable to multiple SDR systems. If you are referring to the compute power required to run the software algorithms, we have not defined that in the draft BAA. Please refer to the final BAA. Offeror feedback will be entertained.

32) What is meant by Performer command & control? Is optimization of RF receiver resources a goal of the program?

The Command and control aspects of Performer solutions must allow the Performer to interact with the SDR to input data and waveforms into Performer algorithms.

33) It is assumed that the performers would already have ability to detect a library of Overt signals, or is that part of the R&D

No assumptions are made on Performers ability to detect Overt signals. SCISRS is interested in detection of Anomalous Signals or Signal behaviors in comparison to a normal Baseline.