Active Authentication
Questions & Answers
As of February 24, 2012

Q52: As a point of clarification, understanding that this may be a multiple award effort for TA1, is it the intention of the Government to fund each solution up to $500K, or the total proposed solution consisting of multiple technologies? Example: If we have three independent solutions defined in our TA1 technical volume, are each available to receive up to $500K, or is our total proposed solution consisting of all three independent solutions capped at $500K?

A52: The costing information was provided to give an understanding of the Government's expectations, not as an absolute restriction. Although the Government does not anticipate funding any independent idea or concept for more than $500k, proposals are not limited by any dollar threshold. In your example, it would be possible for three independent solutions in one proposal to be awarded. As the BAA states, if more than one solution is included in a proposal, each must be proposed as separate tasks in the Statement of Work and Cost Volume.

Q51: My organization is interested in submitting a proposal for the Active Authentication BAA. There is also another cost center that is also planning to submit. May an organization submit two full proposals or would we need to incorporate our research concepts into a single submission?

A51: An organization may submit multiple proposals however, if the proposals are for both Technical Areas, there could be a conflict of interest. See Section III.D.1 of the BAA for specific information.

Q50: In the cost proposal we will submit a detailed cost proposal for each concept. However, the cost summaries for each concept that is required in the technical proposal may be difficult to fit on 1-page. How would you like that to be handled? Also, the on-line cover sheet has fields for 1 set of costs only. Should we enter 1-concept and explain the others in the narrative field?

A50: You should provide a single page summary for the overall proposal plus a single page for each proposed concept. The cover page fields should be the total proposed costs (including all concepts).

Q49: Are we expected to submit the complete IRB draft plan as part of the proposal?

A49: It is desirable, but NOT mandatory that a protocol, or an IRB-approved protocol be submitted with the proposal. Section VI.B.3 of the BAA states, "For all research that will involve human subjects in the first year or phase of the project, the institution must submit evidence of a plan for review by an institutional review board (IRB) as part of the proposal." If proposers are planning human subject research very early in the project they should clearly

show in their proposed schedule the timeline for submitting the protocol(s) and obtaining the required IRB and DoD approvals as early as possible since no DoD/DARPA funding may be used toward human subject research until all approvals are granted.

Q48: On Page 21, Section B, it says "Volume 1 must be concise and detailed with a maximum page count of 16 pages. This does not include figures, tables, charts, cover sheet, table of contents or appendices." Please confirm that figures, tables, and charts in the technical section are not counted in the page limit.

A48: Per the BAA, the page count does not include figures, tables and charts.

Q47: On Page 21 it states that Volume 1 must be 16 pages and does not include "figures, tables, charts, cover sheet, table of contents or appendices". Would you like the charts and tables moved to an Appendix in the back of the document, or should we include them in the front matter, after the TOC, for example? Or should we leave them in-line with the text and use our best judgment in calculating when the page limit has been reached? Also, can we assume that the Cost Summary is not included in the page count since it will contain tables?

A47: Figures, tables and charts should be in line with the text. Per Section IV.B.2.b of the BAA, the cost summary is to be a single page.

Q46: In the solicitation, it says that no external sensor will be considered in phase I for TA1. We are wondering if we can assume a desktop computer is equipped with either a web camera on top of the desktop or a built-in camera and they do not count as an external device.

A46: The BAA describes the typical configuration in DoD that will be supported. This configuration does not include a camera.

Q45: If a contractor is a performer on TA1, can that performer also participate as prime or sub on a TA2 response? In other words, does participation on a TA1 project preclude a contractor from participating on TA2?

A45: As stated in the BAA, proposals for TA2 are not being solicited at this time. Any follow-on BAA will address whatever proposal restrictions exist.

Q44: Will materials presented at the Proposers' Day be available?

A44: Materials presented at the Proposers' Day have been posted to http://www.darpa.mil/Our_Work/I2O/Programs/Active_Authentication.aspx

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Note: the below Q/A are from the Proposers' Day that was held on November 18, 2011 and describe DARPA's current plan for the Active Authentication program. DARPA anticipates the initial solicitation will be published in mid-December.

For the purposes of this document, the technical areas (TAs) as described in the referenced Proposers Day briefing (posted separately) are:
TA1: New Authentication Modalities
TA2: Authentication Platform
TA3: System Testing and Validation

Technical questions:

Q43: Can you elaborate on what you mean by "cognitive" fingerprint?

A43: The term "cognitive" fingerprint comes from a term developed by Dr. S. Alenka Brown-VanHoozer. In research performed over the past decade, Dr. Brown theorized that there is a consistent pattern in which people think and interact that is unique enough to allow for the determination of a unique individual from a group. The thought is that as the unique collection of whorls on your finger leave behind a fingerprint that can be captured afterwards when you interact with the world physically, the way you think and process information can also be captured by the way in which you interact with the technological devices of the world. Examples of how this "cognitive fingerprint" can be detected are found in existing biometrics that track the individual's eye movement, keystroke pattern, and signature. What we are trying to discover in the initial solicitation is patterns that are left behind in other ways that can be traced back to a unique individual i.e., other aspects of the cognitive fingerprint.

Q42: Are there specific use cases of interest?

A42: There are no specific use cases defined beyond the normal DoD office environment.

Q41: What type of hardware platform does the program intend to focus on with the technologies researched in this phase?

A41: Standard DoD office desktops or laptops in a standard DoD office which could be located in a closed office, cubical, or conference room.

Q40: What sensors can we assume are available for research funding in the initial solicitation?

A40: Proposers can assume that they have any sensors available on a standard DoD office environment desktop. Proposers can assume that a standard DoD office environment desktop would specifically include: Keyboard, mouse, the Windows 7 operating systems, the standard DoD product suite (HBSS, Virus scanner of Symantec

or McAfee, Microsoft Office applications), network interface card, and connection to a printer (which may not be local).

Q39: Is the focus on desktop/laptop, or are other system interaction modalities under the scope of this program (e.g., Smart phones, tablets, etc)?

A39: The focus is on desktop/laptops in Phase 1 of the program. Modalities that are developed on other devices that can validate identity without use of hardware sensors which are not available on a standard DoD desktop/laptop may be evaluated.

Q38: Will the focus be on the initial login/authentication or the continuous authentication? It can be both.

A38: The scope of the program will cover both, but the primary focus and most important aspect for the program will be on the continuous authentication.

Q37: If the authentication process is progressive with degrees of confidence (i.e., not binary), will the access also be progressive?

A37: Yes, this refers to activities that will be performed in the planned Phase 2 (not addressed in the initial solicitation). When developed in Phase 2, the authentication platform will track a level of assurance the computer has that the person at the console is who they claim to be. This information will be provided to the operating system with the intention of managing access to resources based on the level of risk that it might not be the right person at the console.

For example: If you want access to a critical military plan, that would be higher risk and require a higher level of validation than if you wanted to access a new report on a public website. How the platform manages the level of risk and increases it assurance of the identity of the person is beyond the scope of this solicitation. The current plan is to address this in a separate solicitation scheduled for next year.

Q36: What level of delay or interference with normal workflow will be tolerated for research efforts funded under this program?

A36: The anticipated metrics for this program (as shown in slide 16 of the Proposers' Day brief) describe the maximum number of false rejections that would be accepted over a specific time period. Note that these false rejections are after five attempts to validate. This means the system would have to falsely reject the user more than five times in a row during continuous usage over 40 hour period to meet this metric. The technologies developed under this program should be able to work invisibly to the user unless five false positives are reached.

Q35: Are you interested in tracking individuals across platforms? For example, this is person X on a laptop, smart phone, and tablet.

A35: Tracking individuals is not within the scope of this program. The intention of this program is to identify individuals using a system locally, not to connect sessions across systems. There will be no aspects of this program that are related to tracking the individual across systems.

Q34: Given this program is focused on authentication for desktops/laptops, do you prefer solutions that involve minimal upgrades to interfaces on these systems?

A34: Yes, the focus of Phase 1 of the program and the initial solicitation will be specifically directed towards software-related biometrics that will be able to be deployed through software distribution methods. There is no intention to fund any hardware-based solutions under the initial solicitation.

Contractual questions

Q33: Will the slides from the Proposers' Day be posted on the DARPA website?

A33: The videotaped version of the presentation and all slides shown during the presentation will be posted on the DARPA website.

Q32: Will the attendee list for the Proposers' Day be posted on the DARPA website?

A32: All registered attendees of the Proposers' Day were asked if they wanted their information posted. A list of those who approved will be posted on the DARPA website.

Q31: If there is a concern that a question asked could reveal a company's Intellectual Property (IP), how can the company ask the question?

A31: The company should e-mail the question to ActiveAuthentication@DARPA.MIL, and DARPA will work with the DARPA Contracting Officer(s) to ensure the question is answered. If it is determined that there are aspects of this question that can be answered publically in a FAQ without releasing the company's IP, DARPA will coordinate with the company before releasing that question to the public.

Q30: Will proposals for Technical Area 2 be considered separately?

A30: What was referred to as Technical Area 2 in the Proposers' Day brief will not be addressed in the initial solicitation. It was included in the description of the Active Authentication program to provide proposers with the full context of the program but no proposals will be accepted for Technical Area 2. The initial solicitation is only addressing the areas described as Technical Area 1 and Technical Area 3.

Q29: Would you prefer to see multiple proposals for separate techniques versus one larger proposal?

A29: DARPA has no preference.

Q28: Does DARPA plan to award 6-8 awards in Technical Area 1 or can one award include multiple studies?

A28: As mentioned in the previous answer, multiple studies can be proposed. The costing proposals should clearly define a break between costing for the different modalities in case the government should desire to fund some but not all of the modalities proposed.

Q27: Can one TA1 proposal offer research on multiple modalities? If multiple, then should it be structured so DARPA could pick and choose between the various offered? Should they be proposed as options?

A27: Yes. When offering multiple modalities the proposer should ensure that their costing proposal clearly defines the break between costing for the different modalities in case the government should desire to fund some but not all of the modalities proposed. They do not need to be proposed as options, but should be offered as separate tasks.

Q26: Can one propose/perform in both TA1 and TA3?

A26: As described in the Proposers' Day brief, Technical Area 3 includes Independent Verification and Validation (IV&V) that will be performed on the efforts from Technical Area 1 and Technical Area 2 (not included in the initial solicitation). Therefore, in order to avoid organizational conflict of interest situations between the technical areas and to ensure objective test and evaluation results, proposers for the initial solicitation will be able to *submit* proposals for both Technical Area 1 and Technical Area 3 however, proposers *selected* for any portion of Technical Area 3 could not be selected for any portion of Technical Area 1. The decision as to which proposal to consider for award will be at the discretion of the Government.

"Should I propose" types of questions

Q25: Who is able to submit proposals for this program?

A25: Each solicitation for this program will be open to anyone with revolutionary ideas in the areas listed provided they are able to meet the requirements of the solicitation. This includes any requirements specific to certain proposers (e.g., FFRDCs or Government labs). DARPA does not anticipate imposing any additional limitations in the initial solicitation.

Q24: I have an existing solution that meets the requirements of this solicitation, but I do not have the human testing information. Can I propose against the initial solicitation?

A24: A technology that exists but does not have statistically significant testing on human subjects would be considered in the scope of the initial solicitation. In this case, the proposal would focus on performing the testing required to demonstrate the technology is effective for humans in a larger scale environment.

Q23: How does a proposer determine if there is already "too much" existing research in an area to obtain funding for a potential solution?

A23: DARPA has an interest in funding new technologies and revolutionary improvements. The intention is not to fund proposals that are focused on incremental advancements in existing areas of research.

Testing questions

Q22: How do we plan to challenge someone to hack?

A22: It is DARPA's intention to bring in a performer who is able to demonstrate experience in determining system vulnerabilities and attack points for systems in the area described in the Proposers' Day brief as Technical Area 3. DARPA will expect proposers in this area to describe their capabilities and experience, not to describe specific attack techniques for technologies that do not exist yet.

Q21: How does DARPA plan to address similar subjects? How do we plan to test uniqueness?

A21: These questions speak directly to the testing protocol, and the answers to these need to be clearly defined in the testing protocol. DARPA will not provide specific requirements for the testing protocol because DARPA is aware the protocol may be driven by the technology. A critical element in the evaluation of each proposal will be how the proposer plans to address these questions. The size of the test group will address the risk of similar subjects and uniqueness.

Q20: Do sample populations for testing need to be government employees?

A20: No, DARPA's only requirement is human subjects.

Q19: What scale (how many) users are you expecting for evaluation, given that cyber-behavioral biometrics have no benchmark datasets.

A19: There is no set scale that has been defined because of the inherent issues with cyber-behavioral biometrics. For example: which has greater weight in testing a technology, one person using a system for 1,000 hours or 1,000 people using a system for one hour? A case could be made for each based on the technology being evaluated. DARPA will expect the proposers to address this by describing how their proposed testing plan will be thorough enough to ensure that it is statistically significant and can be trusted if the technology were deployed on a large scale.

Q18: Does the government have test protocols in place or is the proposer expected to propose a test protocol?

A18: The government does not have a test protocol in place but is working with the agent to obtain parameters for the human testing aspect of the program. Requirements related to the human testing will be included in the anticipated solicitation. All other aspects of the test protocol should be defined by the proposer.

Q17: Regarding the evaluations for TA1, will they be evaluated by ROC curve, a cohesive methodology for all systems, or investigator-defined methodology?

A17: DARPA is not specifying the method for evaluation of the test results other than requiring testing on human subjects. The proposer should detail out their planned testing methodology to ensure DARPA is able to get a sense of how thorough their testing plan is and that their solution will work when the application is used on a larger scale deployment.

Q16: Are there specific trust measures required in the testing part of this program?

A16: There are no specific trust measures defined in the initial solicitation, but this will need to be clarified in any proposals as the trust of a technology is a critical aspect within the context of this program.

Registration questions

Q15: Will registration be done at a desktop or at a central location?

A15: Registration is related to the integrated platform that is TA2. This part of the program is not covered under the initial solicitation. It is expected that registration will be done in a manner similar to how CAC registration is done now, but that question will be answered in a later planned solicitation.

Q14: Is there a requirement for a maximum amount of time the proposed system can spend training itself to identify the user?

A14: There is no requirement tied to training the system for this phase of the program.

Environmental questions

Q13: Can a proposer rely on the existence of a CAC or other method for identification of the person at the keyboard, or does the proposer need to include an identification solution as well?

A13: The proposer is not required to identify the user and can assume that the identification is in place through the presence of a CAC or Windows User ID.

Privacy questions

Q12: Is there a privacy-preserving dimension?

A12: Protecting the privacy of the individual at the console is a critical concern and, even though this will be addressed in the development of the authentication platform in Phase 2 of this program, this will be discussed here. It is not the intention of this program to establish a big database of the individual characteristics of people. The plan in Phase 2 is to use the attributes of the individual to provide access in a manner similar to the following: First, capture the attributes. Then, locally develop a key at the edge where the user is working, and finally pass that key back to the central system that manages authentication. This way the only thing passed back and forth is the encryption key, and the individual's attributes do not need to be stored at a central location. The specific details of how this will be executed will be worked out in a separate solicitation that is planned to occur in Phase 2 of the program and is currently planned for next year.

Technical questions relating to physical sensors:

Q11: Will DARPA consider a new modality with existing or requiring light form factor hardware?

A11: No physical sensors will be considered in Phase 1 of the program or under the initial solicitation.

Q10: May proposals include use of video camera and/or other/new sensors?

A10: No physical sensors will be considered in Phase 1 of the program or under the initial solicitation.

Q9: Do you support addition of hardware to an interface (iris/fingerprint reader/microphone)?

A9: Technologies requiring the addition of physical sensors will not be considered in Phase 1 of the program or under the initial solicitation.

Q8: Can we have an image/camera sensor?

A8: No physical sensors will be considered in Phase 1 of the program or under the initial solicitation.

Q7: Is cost of hardware a significant factor or is having an expensive sensor covering multiple users acceptable?

A7: No physical sensors will be considered in Phase 1 of the program or under the initial solicitation.

Q6: Will the program fund new/robust solutions to traditional biometric modalities, i.e., fingerprints, faces, iris, etc.?

A6: No physical sensors will be considered in Phase 1 of the program or under the initial solicitation. As a general rule, DARPA is not interested in funding evolutionary increases in technology; DARPA focuses on funding revolutionary increases.

Q5: Is the implication that DARPA is not interested in the physical biometrics of the person using the system?

A5: No physical sensors will be considered in Phase 1 of the program or under the initial solicitation.

Q4: Can we move to multi-touch instead of mouse, Kinect instead of simple web camera?

A4: No physical sensors will be considered in Phase 1 of the program or under the initial solicitation.

Q3: What sensors (external) will be considered?

A3: No external sensors will be considered in Phase 1 of the program or under the initial solicitation. That solicitation will focus on information that can be gathered from the existing office environment by deploying only software-based sensors. It is planned that, in Phases 2 and 3 of the program, the authentication platform will integrate sensors of all kinds. DARPA anticipates a separate solicitation for that research in Phase 2 of the program, which is not planned to start until next year.

Q2: How does this program relate to West Point's Continuous ID Systems solicitation?

A2: West Point was involved in the pre-work relating to the development of this program, and is still involved with this program in a supporting role. The solicitation mentioned is related to West Point's supporting role in this program.

Q1: You illustrated a metric test that could be used in a short time frame (<1 min). Are you interested in approaches that take 15-30 minutes?

A1: Yes, that time range would be acceptable under the scope of this program.