



Qualification Guide

Phase 2

October 28, 2024



Defense Advanced Research Projects Agency
Biological Technologies Office
675 North Randolph Street
Arlington, VA 22203-2114
TriageChallenge@darpa.mil

1 Contents

1	Contents	2
2	Introduction	2
3	Qualification Schedule	3
3.1	Team Qualification Window.....	3
3.2	Event Qualification Deadlines	4
4	Human Subjects Research (HSR).....	4
5	Systems Competition Team Qualification.....	5
5.1	Systems Narrative Description	5
5.2	Systems Qualification Tasks.....	7
5.3	Additional documentation.....	7
5.4	Systems Competitor’s Qualification Checklist.....	8
6	Virtual Competition Team Qualification.....	8
6.1	Virtual Competitor’s Qualification Checklist.....	9
7	Data Competition Team Qualification	9
7.1	Narrative	9
7.2	Data Competitor’s Qualification Checklist.....	10

2 Introduction

This document describes the Team Qualification guidelines and submission instructions for the DARPA Triage Challenge (DTC). Prospective DARPA Triage Challenge (DTC) competitors must demonstrate track-appropriate performance capabilities to be eligible to participate in the DTC.

All teams in all three competitions (Systems, Virtual and Data) are required to complete Team Qualification at the beginning of each Phase to officially participate in the DTC as a competitor. All teams are also required to complete Event Qualifications to participate in each workshop event and competition event.

This document will cover the Team Qualification requirements for Phase 2 of the DTC, which includes the second Workshop Event and the second Challenge Event (CE2; see Figure 1). Later revisions will include updated Team Qualification requirements for Phase 3. Event qualification requirements will be released separately.

A team failing Team or Event Qualification may re-apply in a subsequent phase. This document is subject to change and may be superseded by later versions. The latest official versions of all documents will be posted to the [DTC website](#). Significant revisions from past versions in this document are indicated by blue text. Teams are encouraged to closely review the entire document.

3 Qualification Schedule

The three competitions each have a coordinated Workshop and Challenge Event in each phase. Qualification criteria are split into two parts; Team Qualification and Event Qualification. The Team Qualification window will take place at the start of each phase and the Event Qualification will occur approximately 2 months prior to each event.

Qualification submissions will be reviewed on a rolling basis and must be submitted no later than the listed deadlines to be eligible to participate in the events. DARPA will review the submissions and notify teams of qualification status within 10 business days after the qualification deadline. Teams are encouraged to submit their materials well in advance of the qualification deadlines. DARPA may request additional information or a teleconference with a team to discuss their submitted materials.

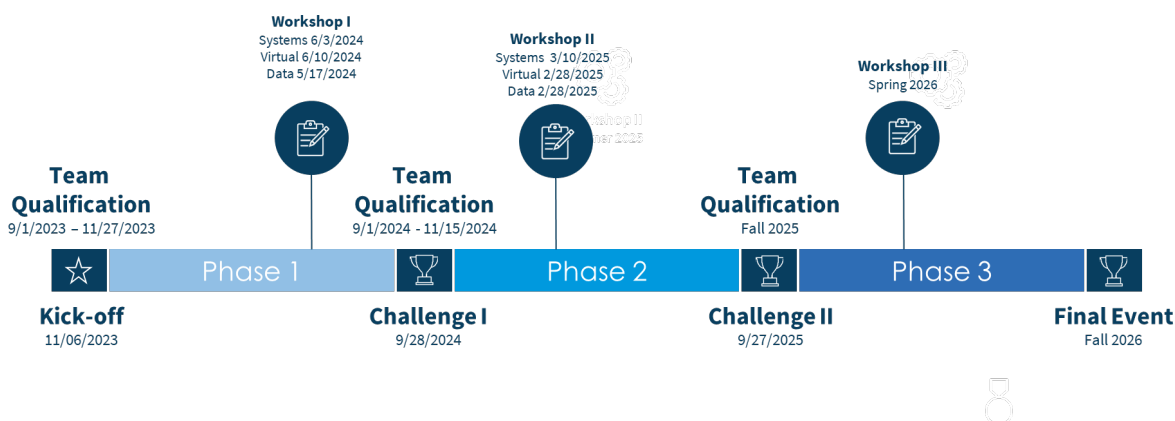


Figure 1: Competition Timeline. Dates for Phase 1 and 2 Event Qualification windows and Events. 3 Qualification windows and Events will be released later.

3.1 Team Qualification Window

The purpose of Team Qualification is to demonstrate that a team has baseline capabilities necessary to perform successfully in the DTC Competition Events. The qualification window will open approximately 2 months before the start of each Phase and will remain open for approximately 2 months. The qualification window for Virtual will remain open until the end of event qualifications. Qualification submissions will be reviewed on a rolling basis and must be submitted no later than the listed deadlines. Teams are encouraged to submit their materials well in advance of the qualification deadlines. Teams that successfully qualify will be given access to the relevant competition materials; competitor portals, and additional resources starting at program kick-off.

Systems teams should be aware that it may take up to 2 months to process all relevant IRB documents prior to releasing training data. Teams wishing to ensure receiving access to training data as soon as possible after kick-off should submit all materials by 10/1/2024.

Teams wishing to qualify are required to submit team narratives and accompanying references and resources as outlined in the sections below. All qualification materials must be submitted via the [DTC Team Portal](#).

Team Qualification Windows by Phase	
Phase 1	9/1/2023 - 11/13/2023
Phase 2	Systems and Data 9/1/2024 - 12/02/2024 Virtual 9/1/2024 - 6/30/2025
Phase 3	<i>Fall 2025</i>

3.2 Event Qualification Deadlines

Prior to each Workshop and Challenge Event, teams will be required to submit updated team narratives and demonstrations of successfully completing a series of qualification tasks to show track-appropriate performance capabilities. All qualification materials must be submitted via the [DTC Team Portal](#).

Additional details related to the qualification tasks will be available on the portal.

Event	Event Qualification	Event Date
Workshop 1	3/5/2024 - 4/5/2024	6/3/2024 – 6/8/2024
Challenge 1	6/28/2024 – 7/30/2024	Systems 9/28/2024 – 10/5/2024 Data and Virtual 8/30/24 - Submission 10/5/2024 - Awards
Workshop 2	12/5/2024-1/5/2025	3/10/2025 - 3/15/2025
Challenge 2	Systems 6/28/2025 – 7/30/2025 Data and Virtual 5/28/2025 – 6/30/2025	Systems 9/27/2025 – 10/4/2025 Data and Virtual 8/30/25 - Submission 10/4/2025 - Awards
Workshop 3	Winter 2025 /2026	Winter 2025/2026
Challenge 3	Summer 2026	Fall 2026

4 Human Subjects Research (HSR)

For the Primary Triage Competition, Systems teams must be included in the Independent Validation and Verification (IV&V) team’s Institutional Review Board (IRB) protocol to access training data collected by the IV&V team and to collect data at the DTC workshops and challenge events (see 5.3 for details). For the Secondary Triage Competition, use of training data provided by DARPA does not constitute HSR. For both Primary and Secondary Triage Competitions, DARPA-funded competitors require DARPA approval for the collection or use of any other human subject data (note, the deadline for submission of proposals for DARPA-funding to compete in the DTC has passed). Self-funded teams are prohibited from the collection or use of any other human subject data as part of their involvement in the DTC because DARPA HSR

supervision is not feasible for teams not under DARPA contract. Self-funded teams should carefully consider this limitation and should take this into account in their technical approach, leveraging other strategies as appropriate (*e.g.*, simulations).

Definition of Human Subjects Research (HSR)

The term “human subject” can be applied to research efforts that meet EITHER of the following criteria:

A living individual about whom an investigator (whether professional or student) conducting research:

- Obtains information or biospecimens through intervention or interaction with the individual, and uses, studies, or analyzes the information or biospecimens; or
- Obtains, uses, studies, analyzes, or generates identifiable private information, personally identifiable information, or identifiable biospecimens.

Human Subjects Research involves:

- Activities that include both a systematic investigation designed to develop or contribute to generalizable knowledge and involve a living individual about whom an investigator conducting research obtains information or biospecimens through intervention or interaction with the individual, or identifiable private information, or biospecimens.

5 Systems Competition Team Qualification

To qualify for the Systems Competition, teams must submit must complete a set of qualification tasks and submit a description of their technical approach. DARPA will use the description to evaluate the team’s overall approach and potentially inform additional follow-up questions and/or tasks. Submissions will be reviewed for validity and qualifying competitors will be notified within 10 business days after the qualification deadline.

5.1 Systems Narrative Description

The narrative description must include the following sections:

Part 1: Team Information

- Team Name
- Team Organization(s)
- Team Point-of-Contact (name, email, phone number)
- Team Roster, i.e., list of all team members, their affiliations and email
- Status of addition to TATRC’s research protocol
- Date of part 107 license or planned date of testing.

Part 2: Technical Approach (500 words max per subsection)

For each element of the Technical Approach below, DARPA will assess whether the plan is consistent with the rules and can successfully compete in the DTC.

- **Experience:**
 - Note any relevant experience in autonomous operation of mobility platforms and/or stand-off sensing of physiological features
- **Mobility Platforms**
 - Platform types (UGV and/or NDAA-Compliant UAV) with specific models identified
 - Number of platforms (teams may field up to 5 at a time)
 - Weight and size of platforms (maximum of 9kg and 1.5m per UAV)
 - Fuel or energy sources and expected continuous runtime
 - Names and Part 107 license status of all UAS pilots
 -
- **Perception**
 - Stand-off sensors that will be used in your approach
 - Features the sensors will detect?
 - What is the minimum standoff distance capability?
 -
- **Autonomy** (5 platforms for a single operator by year 3)
 - High-level software architecture for navigation and search
 - Human operator interfaces
 - Level of autonomy planned for workshop and challenge 1 (manual, semi-autonomous, fully autonomous).
 - Part 107.35 and part 107.31 waivers you intend to apply for.
- **Data Transmission Method**
 - What networking solutions do you expect to use for communication between the platforms and the base station?
- **Algorithms for Physiological Signature Detection**
 - Describe your plan for algorithms and list any existing software you will be building off of.
- **Algorithm Training Methods**
 - Discuss your intended training methods and what if any additional data you intend to use.
- **End User interface**
 - Hardware
 - Displayed features

Safety: The course is expected to have a number of live actors and physical obstacles. Describe your approach and measures to ensure safety during your participation in the competition. Be sure to include descriptions of your approach to software emergency stops, hardware emergency stops, safety operators, and battery charging, monitoring, and storage.

The narrative description must be submitted via the [DTC Team Portal](#). Teams are welcome to attach a document with any diagrams, video clips, or images to support your narrative. Responses are expected to provide sufficient detail to differentiate your approach from other similar approaches.

At its discretion, DARPA may arrange follow-up teleconferences to discuss a team’s submission and/or request additional information about the submission to aid the review. DARPA retains the right to approve or deny team qualification based on materials submitted.

Part 3: Data Handling Agreement and Safeguarding

Competitors acknowledge DARPA’s mission-requirement and intent to safeguard privacy and civil liberties, and that sensitive or identifying data (including personally identifiable information (PII) or protected health information (PHI) is not relevant to the DTC activities and that DARPA-provided datasets supporting those activities have been intentionally de-identified to ensure—to the greatest extent practicable—that there is no reasonable basis to believe that the data could be used to trace a specific identity or present a risk of harm to any individual. Accordingly, the DTC competitors agree they will not intentionally attempt to re-identify, share, or re-use DARPA-provided data.

5.2 Systems Qualification Tasks

Demonstration Graphics / Videos

- Graphics or Links to unlisted YouTube videos
- Short descriptions of any videos (100 words max per video)

Teams will provide graphics or videos as needed to address the listed tasks. The demonstration graphics must include at least the qualification tasks listed in Section 5.2 but may also include additional videos that the teams feel will support their submission

All qualification materials must be submitted via the [DTC Team Portal](#). The narrative description should include links to any videos that are intended to be included as part of the submission. All videos should be posted to YouTube with the privacy setting set to “Unlisted.” Narration of the videos is allowed.

Systems Diagrams

- **Provide an overall wiring diagram of your approach for hardware networking and control.**
- **Provide a diagram of your algorithm approach**

User Interface

- Provide a video or graphic of your proposed user interface

Supplemental Tasks: DARPA encourages submissions that also include video demonstrations of the following capabilities. It is anticipated that these capabilities may be necessary to be competitive.

- Multimodal sensing of objects
- Demonstration of object localization

5.3 Additional documentation

In order for qualifying systems teams to be included in the IV&V protocol and gain access to training data they will need to submit the following documentation: Investigator agreement, COI, CV and Collaborative Institutional Training Initiative (CITI Program) training. Delays in submission will result in significant

delays in access to training data. Teams will have one week after notification of qualifying to submit the documentation. Further details on these requirements will be sent to qualifying teams.

5.4 Systems Competitor's Qualification Checklist

- ☐ STEP 1: Submit your online qualification profile
- ☐ STEP 2: Respond to any feedback/inquiries from the DTC team
- ☐ STEP 3: Wait to receive final notification from DARPA on your qualification status

6 Virtual Competition Team Qualification

To qualify for the Virtual Competition, teams must submit a description of their technical approach. DARPA will use the narrative description to evaluate the team's overall approach and potentially inform additional follow-up questions and/or tasks. Submissions will be reviewed for validity and qualifying competitors will be notified within 10 business days after the qualification deadline.

5.1 Virtual Narrative Description

The narrative description must include the following sections:

Part 1: Team Information

- Team Name
- Team Organization(s)
- Team Point-of-Contact (name, email, phone number)
- Team Roster, i.e., list of all team members, their affiliations and email

Part 2: Technical Approach (500 words max per subsection)

- **Experience:**
 - Note any relevant experience working in/with virtual environments
- **Perception:**
 - What sensors do you plan to use in your approach (RGB, IR, Audio, RADAR, LIDAR, IMU, GPS and Depth Camera are the year 2 options)?
 - How would you use those sensors to detect physiological features?
- **Autonomy**
 - High-level software architecture
- **Algorithms for Physiological Signature Detection**
 - Detail your plan for algorithms and list any existing software you will be building off of.
- **Algorithm Training Methods**
 - Discuss your intended training methods and what if any additional data you intend to use.
- **Workflow**
 - Software development workflow
 - Laboratory/computing resources

The narrative description must be submitted via the DTC Team Portal. Teams are welcome to attach a document with any diagrams, video clips, or images to support your narrative. Responses are expected to provide sufficient detail to differentiate your approach from other similar approaches.

At its discretion, DARPA may arrange follow-up teleconferences to discuss a team's submission and/or request additional information about the submission to aid the review. DARPA retains the right to approve or deny team qualification based on materials submitted.

6.1 Virtual Competitor's Qualification Checklist

- ☐ STEP 1: Submit your online qualification profile
- ☐ STEP 2: Respond to any feedback/inquiries from the DTC team
- ☐ STEP 3: Wait to receive final notification from DARPA on your qualification status

7 Data Competition Team Qualification

To qualify for the Data Competition, teams must submit a description of their technical approach. DARPA will use the description to evaluate the team's overall approach and potentially inform additional follow-up questions and/or tasks. Submissions will be reviewed for validity and qualifying competitors will be notified within 10 business days after the qualification deadline.

In addition, teams are required to complete a small machine learning task on a dataset to demonstrate basic skills needed for the Data Competition.

7.1 Narrative

The narrative description must include the following sections:

Part 1: Team Information

- Team Name
- Team Organization(s)
- Team Point-of-Contact (name, email, phone number)
- Team Roster, i.e., list of all team members, their affiliations and email

Part 2: Technical Approach (500 words max per subsection) For each element of the Technical Approach below, DARPA will assess whether the plan is consistent with the rules and can feasibly compete in the DTC.

- **Workflow for handling large volumes of noisy multimodal data**
 - Data cleaning
 - Missing data
- **LSI predicting algorithms**
 - Detail your plan for algorithms and list any existing software which you will be building off of.
- **Algorithm Training Methods**
 - Discuss your intended training methods and what if any additional data you intend to use. Keep in mind the prohibition of HSR activity by unfunded teams.

Part 3: Algorithm Development Teams will be given a simple machine learning classification task. Teams will download the training dataset hosted by our IV&V team. The dataset consists of waveforms of simulated biological signals. The task will have data cleaning, training and multi-class classification aspects. We expect this early-graduate level problem to take several hours to complete as a part of qualification requirements.

Part 4: Data Handling Agreement and Safeguarding

Competitors acknowledge DARPA’s mission-requirement and intent to safeguard privacy and civil liberties, and that sensitive or identifying data (including personally identifiable information (PII) or protected health information (PHI)) is not relevant to the DTC activities and that DARPA-provided datasets supporting those activities have been intentionally de-identified to ensure—to the greatest extent practicable—that there is no reasonable basis to believe that the data could be used to trace a specific identity or present a risk of harm to any individual. Accordingly, the DTC competitors agree they will not intentionally attempt to download, re-identify, share, or re-use DARPA-provided data.

The narrative description must be submitted via the [DTC Team Portal](#). Teams are welcome to attach a document with any diagrams, video clips, or images to support your narrative. Responses are expected to provide sufficient detail to differentiate your approach from other similar approaches.

At its discretion, DARPA may arrange follow-up teleconferences to discuss a team’s submission and/or request additional details about the submission to aid in the review. DARPA retains the right to approve or deny team qualification based on materials submitted.

7.2 Data Competitor’s Qualification Checklist

- ☐ STEP 1: Submit your online qualification profile
- ☐ STEP 2: Submit your algorithm development task
- ☐ STEP 3: Respond to any feedback/inquiries from the DTC team
- ☐ STEP 4: Wait to receive final notification from DARPA on your qualification status