

CHALLENGE.GOV CHALLENGE POSTING REQUEST PROCESS

This document details the process and inputs needed to post your challenge on Challenge.gov.

If you have any questions, contact the Challenge.gov Team at team@challenge.gov.

Content Posting Process & Deadlines

The Challenge.gov website refreshes with new content two (2) times per week – on Tuesday and Thursday mornings. Below are the key activities and deadlines for these weekly production pushes.

Key Activity	Deadlines for Site Update 1 Tuesday AM	Deadlines for Site Update 2 Thursday AM
Challenge Posting Content Submission	12:00 pm ET on Friday of week before	12:00 pm ET on Tuesday
Preview Provided to Challenge Manager	10:00 am ET on Monday	10:00 am ET on Wednesday
Challenge Manager Final Review/Approval	5:00 pm ET on Monday	5:00 pm ET on Wednesday
Challenge.gov team Publishes New Content	approx. 7 am ET on Tuesday	approx. 7 am ET on Thursday

Posting Options

1. **Full Posting:** A full posting provides your challenge its own web page on Challenge.gov with a complete description of your challenge, rules, prizes, judging criteria and instructions on entering. An added benefit of a full posting is that it fulfills the announcement requirement for the America COMPETES/American Innovation and Competitiveness Act legal authority.
2. **Listing Only:** This provides you with a listing tile on the homepage of Challenge.gov that includes the challenge title, tagline, agency, logo, total prize purse and submission end date. When someone clicks on your tile, they will be redirected to your official challenge hosting site.

NOTE: If you're running your challenge under the America COMPETES/American Innovation and Competitiveness Act legal authority, the following information must be announced on a publicly accessible government website: (1) Subject of the prize competition; (2) Rules for being eligible to participate in the prize competition; (3) Process for participants to register for the prize competition; (4) Amount of the cash prize purse or non-cash prize award; (5) Basis on which a winner will be selected

Other Things to Note

- **Before submitting your posting request:** Please ensure that your challenge content has been reviewed and approved by all necessary agency authorities prior to submitting your request to the Challenge.gov team for posting.
- **After your challenge launches:** If you need updates to be made after your challenge is live on Challenge.gov, provide an updated copy of your most recent posting request form with the requested changes tracked in the document.
- **After your challenge closes:** After the submission period has ended, your challenge will be moved to the Archived Challenges page on Challenge.gov. Your challenge's individual page will remain on the site and be accessible by its URL and through a web search.

CHALLENGE POSTING REQUEST FORM

Send your completed form & challenge logo (as separate files) to team@challenge.gov.

See the **Challenge Posting Field Descriptions & Instructions** section that follows this form for additional information and field specific instructions.

Note: To mark your answers for inputs requiring a choice selection, you have the following options: (1) put an X preceding the relevant choice text; (2) remove options that do not apply to your challenge; (3) highlight the relevant choice text.

All Challenges

Challenge Image: Include your image as a separate file (png or jpeg) attached to the email containing your completed *Challenge Posting Request Form*. Optimal size for display on Challenge.gov is: **341px x 160px**. If you don't have a logo, your challenge will display with your agency seal.

Posting Field	Challenge Details
Posting Type (select desired type)	<input checked="" type="checkbox"/> Full Posting Listing Only
Challenge Title	5G Challenge Preliminary Event: RAN Subsystem Interoperability
Tagline	Advancing modular 5G RAN subsystems for multi-vendor interoperable, secure solutions
Agency	National Telecommunications and Information Administration, Institute for Telecommunication Sciences (NTIA/ITS)
Partner Agencies (If applicable)	Federal Partners <ul style="list-style-type: none">U.S. Department of Defense, Office of the Under Secretary of Defense for Research and Engineering (OUSD(R&E)) Non-Federal Partners
Total Cash Prize Offered (optional)	\$3,000,000
Challenge Type (select all that apply)	<input checked="" type="checkbox"/> Software and apps Creative (multimedia & design) Ideas <input checked="" type="checkbox"/> Technology demonstration and hardware Nominations Business plans Analytics, visualizations, algorithms Scientific
Submission Period Start	Date: Thursday, April 7, 2022 (4/7/2022) Time (ET): 12:00 PM

Posting Field	Challenge Details
Submission Period End	Date: Thursday, May 5, 2022 (5/5/2022) Time (ET): 8:00 PM
Fiscal Year(s)	2022
Legal Authority	[X] America COMPETES Act Agency specific prize authority Procurement Authority Other Transaction Authority Grants and cooperative agreements Other
Challenge Manager Name	Jeremy Glenn
Challenge Manager Email	jglenn@ntia.gov
Challenge Point of Contact Email	5gchallenge@ntia.gov
Social Media Profiles (optional, but recommended)	YouTube: https://www.youtube.com/ntiagov Twitter “@” Handle: https://twitter.com/ntiagov Challenge “#” Hashtags: N/A Facebook: https://www.facebook.com/ntiagov

Listing Only

Posting Field	Challenge Details
Challenge Redirect URL	https://ntia.gov/5g-challenge

Full Posting

In-line Images (if applicable): Include any images you want displayed within descriptive sections of your challenge as separate files (png or jpeg) attached to the email containing your completed *Challenge Posting Request Form*. Please indicate in your challenge content sections where the image(s) should be positioned.

Document links (if applicable): If you are unable to host challenge related documents on an agency or challenge specific site, we can upload those to the Challenge.gov site and link to them from your challenge page. All files must be 508 compliant. Include any documents you want to link to within the descriptive sections of your challenge as separate PDF files attached to the email containing your completed *Challenge Posting Request Form*. Please indicate in your challenge content sections where the document links should be.

Section 1: Challenge Description

1.A - General Overview

Test the interoperability of your modular RAN Subsystem in a multi-vendor, open and secure 5G environment!

Join the 5G Challenge to help accelerate adoption of 5G open interfaces, interoperable subsystems, and multi-vendor solutions by fostering a large, vibrant, and growing vendor community dedicated to advancing 5G interoperability towards true plug-and-play operation.

The National Telecommunications and Information Administration's Institute for Telecommunication Sciences (NTIA/ITS), in collaboration with Department of Defense's Office of the Under Secretary of Defense for Research and Engineering (OUSD(R&E)), is conducting the *5G Challenge* to accelerate the adoption of *open interfaces*, *interoperable subsystems*, and modular, multi-vendor solutions by fostering a large, vibrant, and growing vendor community dedicated to advancing 5G interoperability towards true plug-and-play operation.

Today, mobile wireless networks are assembled by mobile network operators and composed of many proprietary solutions. Each discrete element typically has custom, closed-source software. Changes to any single element require complex and meticulous verification of the entire network. This industry dynamic increases costs, slows innovation, and reduces competition. Security issues are difficult to detect and fix. A diversified market of open, modular 5G elements would reduce costs while accelerating innovation and competition.

This 5G Challenge Preliminary Event: RAN Subsystem Interoperability will award up to \$3,000,000 to participants who submit hardware and/or software solutions for any or all of the following 5G network subsystems, which must be compliant with the 3GPP Release 15 Standard and ORAN Alliance Specifications for the Open Fronthaul 7-2x split interface:

- Distributed Unit (DU)
- Centralized Unit (CU)
- Radio Unit (RU)

The *5G Challenge Preliminary Event: RAN Subsystem Interoperability* will:

- Utilize existing open interface standards
- Leverage industry trends toward virtualization, softwarization, and cloud systems
- Encourage modular product development
- Demonstrate multi-vendor interoperability
- Reduce barriers of entry for new solutions providers

For more information on the 2022 contest, please refer to the [supply PDF to link to: [5G Challenge Preliminary Event: RAN Subsystem Interoperability Rules](#)].

The rules, location, and details of the second year 5G Challenge Final Event will be released later in 2023. Contestants, while encouraged to do so, do not need to participate in the Preliminary Event to compete in the Final Event.

Why Compete?

Last Update: Dec. 8, 2020

The 5G Challenge provides contestants:

- Opportunity to showcase 5G RAN subsystems to the broader U.S. government market, including DoD and NTIA, for 5G innovation opportunities.
- Opportunity to win part of the \$3,000,000 Preliminary Event cash prize pool.
- Early exposure to DoD and NTIA/ITS in the Preliminary Event in 2022 in anticipation of a much larger prize pool in the Final Event in 2023.
- Opportunity to showcase how a single vendor RAN component integrates into an independent host lab environment, in an open innovation prize competition.
- Opportunity to use a host lab and work with knowledgeable engineers, who have extensive knowledge and expertise working with multiple vendors to achieve integration and interoperability.

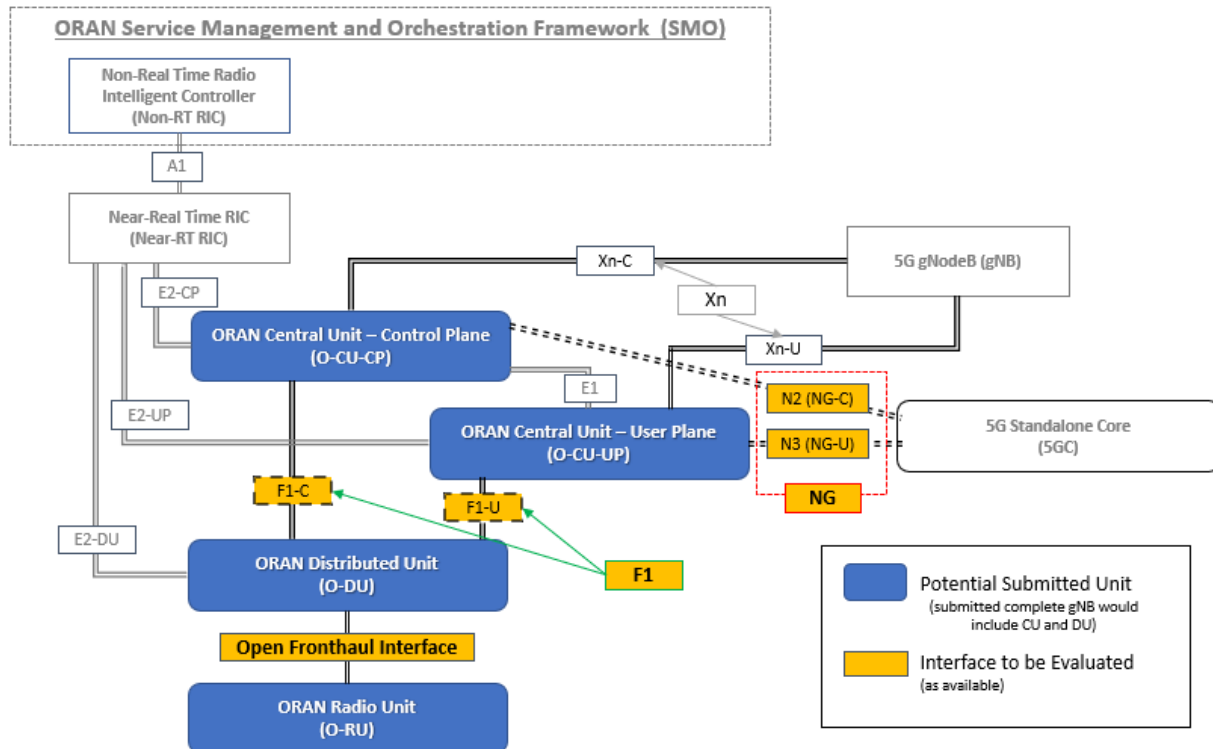
Host Lab Capabilities

CableLabs, the host lab for the 5G Challenge Preliminary Event, is a not-for-profit innovation and R&D lab that has global impact through its 63 member companies, serving more than 150 million households and mobile users worldwide with its state-of-the-art research facility and collaborative ecosystem. The 5G Challenge builds on CableLabs' experience as an independent arbitrator and host of industry interoperability events.

The host lab will provide an emulated Viavi 5G test system, two (2) SA 5G cores, and two (2) virtualized Radio Access Networks (vRAN). The host lab will verify interoperability and measure performance metrics of submitted designs. The host lab can emulate up to 128 UEs and 128 connections across a 10Gb/s interface. The 5G core can support up to 10,000 subscribers and connections. More details on the host lab's 5G systems can be found in the [supply PDF to link to: [5G Challenge Preliminary Event: RAN Subsystem Interoperability Host Lab Specification](#)], published separately. **Error! Reference source not found.** Note that references to the "host lab system" may refer to multiple host lab system configurations.

Required Subsystem Interface Availability

Non-standalone (NSA) 5G systems will not be evaluated. The 5G Challenge uses both the SA core and 5G RAN configuration (SA option 2), but only 5G RAN components will be evaluated. The overview diagram below shows which elements of the ORAN framework will be evaluated in this competition.



Note: CU subsystem submissions must include both the CU-CP and CU-UP.

Each contestant will be offered an amount of time “in the lab” with the host that is equal to the time offered to other contestants, regardless of the number of subsystems submitted by each contestant. Any contestant who submits multiple subsystems will need to divide their time in the lab among these subsystems.

Subsystems must be capable of operating with a 5G baseline system that adheres to 3GPP Release 15 and uses the O-RAN Alliance Specification for the Open Front Haul interface specified by the host lab in the [supply PDF to link to: [5G Challenge Preliminary Event: RAN Subsystem Interoperability Host Lab Specification](#)].

The host lab can support the following entry tracks (regardless of track chosen, the host lab will provide remote access to the contestant’s subsystem):

TRACK 1: Cluster delivery and local host lab installation — contestant subsystem hardware/software servers are staged, pre-tested and pre-configured and delivered to host lab for integration and test

TRACK 2: Remote install onto host lab cluster — delivery of contestant subsystem is remotely uploaded and installed into host lab cluster for integration and test

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TRACK 3: Remote contestant lab — contestant subsystem is located remotely in contestant lab and accesses host lab for integration and test (only available to CU subsystems, some latency and cost considerations)

1.B - Key Dates

The following table shows the key dates for the 5G Challenge Preliminary Event, for more information refer to the [supply PDF to link to: [5G Challenge Preliminary Event: RAN Subsystem Interoperability Rules](#)].

Stage	Event	Date
Stage One	Early-bird white papers due	April 21, 2022
	Early-bird Stage Two contestants announced	April 27, 2022
	Final white papers due	May 5, 2022
	Remaining Stage Two contestants announced	May 19, 2022
Stage Two	Emulated Integration testing	May 4 – August 8, 2022
	Judge panel evaluates results	August 9-11, 2022
	Stage Two winners and Stage Three contestants announced	August 12, 2022
	Stage Two technical papers due (for Stage Two winners not selected for Stage Three)	September 2, 2022
Stage Three	Network Integration testing – Test Window 1	August 19 – September 9, 2022
	Network Integration testing – Test Window 2	September 12-30, 2022
	Closing Ceremony	September 30, 2022
	Judge panel evaluates results	October 3-5, 2022
	Stage Three winners announced	October 6, 2022
	Stage Three technical papers due	October 27, 2022

Section 2: Prizes

2.A – Total Cash Prize Pool

The 5G Challenge Preliminary Event offers a total cash prize pool of \$3,000,000. To receive a cash prize, winning contestants must submit an acceptable technical paper. See [internal link to: [5G Challenge Preliminary Event: RAN Subsystem Interoperability Technical Paper Guidelines](#)] for additional details. For information on evaluating scores and determining prize winners see [internal link to: [5G Challenge Preliminary Event: RAN Subsystem Interoperability Scoring Guide and Metrics](#)] for additional details.

2.B – Prize Breakdown

Stage Two Emulated Integration and SBOM Prize Pool: \$2,000,000

NTIA/ITS will award prizes of \$150,000 each to up to twelve (12) contestants who meet the minimum performance threshold during Stage Two. Contestants that submit multiple subsystems will qualify for multiple Emulated Integration Prizes for any of their subsystems that meet the minimum performance threshold during Stage Two.

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Only contestants who qualify for a Stage Two Emulated Integration Prize will be considered for the best SBOM prize; one qualified contestant will be selected to receive a \$200,000 for the best SBOM.

Stage Three Network Integration Prize Pool: \$1,000,000

During Stage Three Network Integration, up to four (4) additional prizes of \$250,000 each will be awarded. During two sequential test windows, the contestant pair that receives the highest score will win, and each contestant in that contestant pair will be awarded a Network Integration Prize of \$250,000. If the contestant pair contains a single contestant, then that contestant will be awarded a Network Integration Prize of \$250,000 and the remaining prize will not be awarded. A contestant could potentially win two Network Integration prizes if they win both the first and second test window pairings.

2.C – Non-monetary Prizes (if applicable)

Not applicable.

Section 3: Rules

3.A – Rules

See [internal link to: [5G Challenge Preliminary Event: RAN Subsystem Interoperability Rules](#)] for details.

3.B – Eligibility Requirements

See [internal link to: [5G Challenge Preliminary Event: RAN Subsystem Interoperability Rules](#)] for details.

3.C – Terms & Conditions

See [internal link to: [5G Challenge Preliminary Event: RAN Subsystem Interoperability Rules](#)] for details.

Section 4: Judging Criteria

4.A – Judging Panel

The Administrator of NTIA will select members from NTIA, other federal agencies, or industry to evaluate submissions to the 5G Challenge. The Stage One judging panel will evaluate white papers and select up to 12 contestants to compete in Stage Two. The Stage Two judging panel will evaluate emulated integration testing results, select Stage Two winners, and select up to 6 contestants to compete in Stage Three. The Stage Three judging panel will evaluate network integration testing results and select Stage Three winners.

Judges will make an independent assessment of each white paper, SBOM, and Stage Two and Stage Three testing results based on the evaluation criteria. Judges will not review or consider incomplete white papers. During the review, each subject matter expert and Judging panel member will review entire white papers to which they are assigned. The Judging panel will make the final determination of all awards and contestant selection during the Challenge.

4.B – Judging Criteria

See [internal link to: [5G Challenge Preliminary Event: RAN Subsystem Interoperability Scoring Guide and Metrics](#)].

Section 5: How to Enter

5.A – Entry Instructions

To be eligible to win a prize award under this Challenge, Contestants must enter a submission for the *5G Challenge Preliminary Event: RAN Subsystem Interoperability*. Your white paper submission must be submitted via Challenge.gov by 10:00pm ET on Thursday, April 21, 2022 (4/21/2022) for early-bird submission or by 10:00pm ET on Thursday, May 5, 2022 (5/5/2022) for final submission. Incomplete applications will not be accepted. Follow these instructions:

1. Include your full name (or if a team submission the Competitor Official must include the team's name) and contact information (your email, address, and phone numbers)
2. The name of your proposed solution(s)
3. If submitting multiple subsystems, include all subsystem in one white paper (see [internal link to: [White Papers](#)]).
4. Include an initial Software Bill of Materials (SBOM) with their application, so judges can start determination of secure software implementation (see [internal link to: [Software Bill of Materials \(SBOM\)](#)]).
5. Your submission should be in English and not contain proprietary information.

The 5G Challenge Prize Competitions team will confirm each submission with via Challenge.gov

Contestants' scores and ranks will be based on the evaluation criteria described in the official rules document. Prize Winners of this Challenge will be determined solely by the judging panel's ranking (subject to compliance with the Challenge Rules, Terms, and conditions).

Failure to follow the submission guidelines may result in disqualification.

5.B – Submission URL or Email

Contact

Have a question or comment about this challenge? Reach out by completing the form below.

Email address *

Question or comment *

CHALLENGE POSTING FIELD DESCRIPTIONS & INSTRUCTIONS

All Challenges

Last Update: Dec. 8, 2020

Challenge Title: Provide the official title of your challenge. Your challenge title will appear in your challenge's listing tile on the Challenge.gov homepage. For Full Postings, the challenge title will appear again at the top of your individual challenge page. What you enter here as your title will determine what your challenge's URL on Challenge.gov will be. The URL structure will be: challenge.gov/challenge/title-of-your-challenge.

Tagline: Provide a clear one-sentence call to action for solvers - essentially your challenge's headline. It is recommended that taglines be limited to 130 characters or less. Taglines longer than that may be cut off on the challenge's listing tile on the Challenge.gov homepage. For Full Postings, the tagline will also appear at the top of your individual challenge page.

Agency: Provide the name of the lead agency sponsoring the challenge.

Partner Agencies: List any federal agency and/or non-federal partners you have for the challenge.

Total Prize Offered Cash: Provide the total amount of cash prizes available for your challenge.

Type of Challenge: Select one or more categories that best describe your challenge.

Submission Start: Provide time and date for when your challenge opens for submissions. Use this format: Month/Day/Year TIME OF DAY (Example: 06/19/2020 05:00 PM ET). Note: All times will be listed on the site in Eastern Time.

Submission End: Provide time and date for your submission deadline. Use this format: Month/Day/Year TIME OF DAY (Example: 06/19/2020 05:00 PM ET). Note: All times will be listed on the site in Eastern Time.

Fiscal Year: Provide the fiscal year(s) during which your challenge is being run (launched, ongoing, completed).

Legal Authority: Provide the legal authority under which you are running the challenge.

Challenge Manager Name: Provide the name of the challenge manager. For Challenge.gov team use only. This does not display on the public.

Challenge Manager Email: Provide an email address where the challenge manager can be contacted. For Challenge.gov team use only. This does not display on the public.

Challenge Point of Contact: Provide an email address for participants and members of the public to use for questions about your challenge. For Full Postings, this will appear on your challenge page with the language: "Have feedback or questions about this challenge? Send the challenge manager an email" - "send the challenge manager an email" will be linked to the POC email provided.

Social Media Profiles: Please provide any social media "@" handles and "#" hashtags for your challenge and/or agency (e.g. @AgencyPageHandle, #MyChallengeHashtag). If more than one agency is sponsoring the challenge, please list in order they should appear in social media posts. As we are able to do so, we will use these to amplify your challenge marketing through the Challenge.gov social media sites – either by sharing content posted on your social media pages, or creating new content for the Challenge.gov social media pages.

Listing Only

Last Update: Dec. 8, 2020

External-URL: Provide the URL for the challenge website. The challenge tile on the Challenge.gov website will automatically redirect to this URL when selected.

Full Posting

Challenge Description: Provide a general overview of your challenge, including any background on the problem you're trying to solve. Your challenge page has a designated place for your submission start and end dates, but if you have other dates you want reflected, please include them in your Description text. Consider including a "Key Dates" section with dates for informational webinars, judging period, winner announcements, different phases, etc. **Note:** Please provide any tables you wish to be included in this section as a separate graphic file (png or jpeg). Make a note in the text where the table graphic should be displayed.

Prizes: Provide the total cash prize pool, and the amounts and descriptions of individual cash prizes for your challenge. If applicable, also provide a summary of any non-monetary incentives your challenge offers to participants. **Note:** Please provide any tables you wish to be included in this section as a separate graphic file (png or jpeg). Make a note in the text where the table graphic should be displayed.

Rules: Provide the rules, eligibility requirements and/or terms & conditions for your challenge. If your rules are lengthy, consider providing a more digestible summary and then a link to an official document or web page with the complete rules. **Note:** Please provide any tables you wish to be included in this section as a separate graphic file (png or jpeg). Make a note in the text where the table graphic should be displayed.

Judging Criteria: Provide any information you want your solvers to know about the judging panel who will be evaluating their submissions. Provide a heading, description and weight (if applicable) for each criteria submissions will be evaluated by. You can provide a general summary of how submissions will be evaluated if you don't have individual weighted criteria. **Note:** Please provide any tables you wish to be included in this section as a separate graphic file (png or jpeg). Make a note in the text where the table graphic should be displayed.

How to Enter: Provide any specific instructions or entry guidelines your solvers need to know, including any registration requirements. Be sure to include the submission website URL or email address.