



Khronos Group

Request for Proposals

Capability Analysis Test

16 October 2024

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Request for Proposals

Capability Analysis Test

1. Background (Informative)

ANARI is a runtime standard with many of its documentation, resources, tutorials, and examples geared towards runtime developers.

ANARI WG wishes to expand and demonstrate the reach of the API Standard by adding a Capability Analysis Test (CAT) to complement ANARI's existing Conformance Test Suite (CTS). While the existing ANARI CTS seeks to answer the question "what is the correctness of a synonym particular ANARI implementation?", the CAT will seek to answer the question "what are the performance and limits of a particular ANARI implementation?". This capability analysis suite will leverage as much testing infrastructure as they possibly can, but ought to remain independent entities given the orthogonal nature of their purposes.

2. Summary (Informative)

The section summarizes this RFP. It does not supersede any other section in the document.

Contract Type	Time & Materials
Contract Amount	Not to exceed \$38,000 US dollars
Contract Duration	Anticipate 2 months
Proposals Due	4 December 2024 at 6am PST (GMT-0800)
Bids good until	23 December 2024
Bidder notification	20 December 2024
Anticipated contract start	6 January 2025

3. Methodology (Informative)

Khronos has a fixed budget for this project with payments made monthly after approval of the ANARI Working Group.

This RFP is being circulated to all Khronos members and the general public. Anyone with experience in ANARI is welcome to submit a proposal for consideration.

- Contractor selection is described in [§8. Selection Process](#).
- The contracting process is described in [§9. Contracting Agreement](#).
- Any follow-on work is described in [§10. Project Continuation](#).

4. Scope (Normative)

Project funds **shall only** be used for the following items (see [§5. Deliverables](#) for details):

1. **Development of Project Deliverables**
2. **ANARI Reviews and Feedback** - Providing feedback and reviewing ANARI merge requests and issues can be billed if that particular item is related to improving the ANARI-SDK or vendor backends used for testing of the items developed in this project.
3. **Project Meetings** - Contractor may only bill for the regularly scheduled “ANARI Capability Analysis Test Project” meetings. All other Working Group meetings including F2F events are not billable unless explicitly authorized by ANARI Working Group.

Project funds **shall not** be used for any of the following items

1. **ANARI Specification Creation** - Contractor can provide feedback, suggestions, and clarification and style edits on existing or proposed ANARI specification text including editing language, voice, format, and style, but **CANNOT** propose new specified functionality that becomes part of the ANARI specification using the project funds.
2. **Non-Project Meetings** - All Working Group or Khronos meetings including F2F events are not billable with the following exceptions
 - 2.1. Regularly scheduled “ANARI Capability Analysis Tool” meetings
 - 2.2. Meetings or events explicitly authorized by ANARI Working Group prior to the meeting or event

Attendance by at least one representative from the ANARI Capability Analysis Test contractor at the “ANARI Capability Analysis Test Project” meetings is required to provide the Working Group members with updates on the status of the project. The time and cadence of such meetings will be jointly determined by ANARI Working Group and the Contractor.

5. Deliverables (Normative)

The contractor shall deliver to ANARI Working Group a short weekly status and monthly progress report. The contractor will use existing email list(s) for communicating to ANARI Working Group or other means as determined by the ANARI Working Group Chair. The contractor will work under technical direction of the ANARI technical project lead as directed by the Chair of ANARI Working Group.

- 5.1. Construct a C++ capability analysis application with the following properties:
 - 5.1.1. Allows both interactive and offline execution.
 - 5.1.2. Uses the existing '[anari test scenes](#)'^[2] library for scene construction and management.
 - 5.1.3. Reported capability timings (mean, minimum, maximum):
 - 5.1.3.1. Device reported frame latency (property on frame).
 - 5.1.3.2. Application observed frame latency.
 - 5.1.3.3. Scene construction time.
 - 5.1.3.4. Scene update time (camera movement, animations, etc.).
 - 5.1.3.5. Window/UI display latency (interactive only).
 - 5.1.4. Interactive mode should use the '[anari viewer](#)'^[3] library to graphically show the test, realtime plot timings (via [Dear ImGui](#)^[4]), and allow interactive exploration via camera movement and/or animation
- 5.2. Define at least one procedural test to dynamically scale up a scene in each of the following scenarios:
 - 5.2.1. Geometry primitive count for geometric primitives (up to and including the maximum reported allowed size).
 - 5.2.2. Number of materials.
 - 5.2.3. Scalar field size.
 - 5.2.4. Instance count.
- 5.3. Define at least one procedural test to cover each of the following scene update scenarios:
 - 5.3.1. Array data updates (i.e. animated vertices).
 - 5.3.2. Scene structural changes (e.g. switching objects in/out of a particular world).
 - 5.3.3. Parameter updates (e.g. material updates).

6. Schedule and Budget (Normative)

Khronos is funding this work at a total price not to exceed \$38,000 for up to 3 months. If necessary, ANARI Working Group will evaluate if additional work is required and create a new contract. Khronos will assume that the spending profile is approximately \$12,667 per month. Bidders may propose other spending (and work) profiles that are not uniform in their proposal.

Payments shall be made monthly provided the invoice for the preceding month is submitted by the 5th of the month.

Due to the nature of the work, the project type is expected to be Time and Materials.

7. Requirements (Normative)

The Requirements for this project are listed in the deliverables.

8. Selection Process (Normative)

Khronos shall designate a Khronos RFP Manager and will use an RFP email list (anari-cat-rfp@lists.khronos.org) that can be used to contact the RFP Manager and all other Khronos members involved in the bid selection process. No member making a bid shall be on the RFP list. Any organization considering making a bid in response to the RFP should notify the RFP list as soon as possible. Any potential bidder may request additional information and submit questions directly to the RFP manager or on the RFP email list. Any additional Khronos information and RFP clarifications will be distributed equally to all potential bidders.

All bidders should provide the following information in the format of their choice:

- Proposed schedule, assuming work starts on **6 January 2025**
- Confirmation that if your bid is accepted, you are willing to work under the terms of the Khronos Contractor Agreement^[1].
- Any issues or risk factors that they wish to highlight.
- Supporting materials, including background materials about their company, highlighting experience and expertise relevant to this project.

RFP responses are requested by **6:00am PST (GMT-0800) on 4 December 2024** and should be sent to the RFP list. Bidders may update their bid as they wish before the submission deadline. In exceptional circumstances a requested submission deadline extension may be issued to all bidders at Khronos' discretion. All bids must be good until **23 December 2024**.

Khronos will evaluate all bids and select the bid based on stated and relevant expertise, including experience with ANARI; innovative ideas; budget; schedule; and previous Khronos experience.

Khronos expects to announce the selected bid within three (3) weeks after the submission deadline and will immediately notify all bidders and enter into contract negotiations with the

selected bidder to finalize deliverables and payment schedule. Khronos will immediately notify all other bidders once contract negotiations are complete. In the case contractual agreement cannot be reached, Khronos may select an alternative bidder and re-enter negotiations.

Work can start immediately when the contract is negotiated and executed by both parties.

9. Contractor's Agreement (Normative)

The selected contractor will be required to execute the Khronos Contractors Agreement¹ with Milestones and Costs entered into Exhibit B and Contractor Disclosures entered into Exhibit C.

No work shall begin, and Khronos shall be liable for no costs or expenses, until the selected contractor is in receipt of a mutually executed Contractor's Agreement.

It is important that contractors understand that, under the terms of the Contractors Agreement, Khronos will assess progress on a regular basis and reserves the right to terminate or renegotiate the contract in the event of insufficient progress or other issues.

10. Project Continuation (Informative)

Khronos might consider possible extensions and follow-ons to this project. Successful completion of this project by the contractor enables bidding or assignment on any future follow-on work.

11. References

[1] Khronos Contractors Agreement - <https://members.khronos.org/document/dl/30507>

[2] anari_test_scenes at https://github.com/KhronosGroup/ANARI-SDK/tree/main/src/anari_test_scenes

[3] anari_viewer at https://github.com/KhronosGroup/ANARI-SDK/tree/main/src/anari_viewer

[4] Dear ImGui at <https://github.com/ocornut/imgui>