

# OpenSFS Development Contract

**CONTRACT NO.**

*Open Scalable File Systems, Inc.  
P.O. Box 191  
Livermore, CA 94551*

**Contractor:**

**Contract**

**Administrator:**

## **Introduction**

This is a Fixed Price Contract for OpenSFS Development, as further described herein.

The parties to this Contract are Open Scalable File Systems, Inc. (hereinafter called OpenSFS) and the party identified above as the Contractor.

## **Agreement**

The parties agree to perform their respective obligations in accordance with the terms, conditions, and provisions of the attached SCHEDULE OF ARTICLES and any documents referenced or incorporated therein, which together with this Contract Signature Page shall collectively constitute the entire Contract and shall supersede all prior negotiations, representations, or agreements, whether verbal or written.

**Contractor**

**Open Scalable File Systems Inc.**

BY:  
NAME:  
TITLE:  
DATE:

BY:  
NAME:  
TITLE:  
DATE:

# OpenSFS Development Contract

## SCHEDULE OF ARTICLES FOR CONTRACT NO.

### ARTICLE 1 – SCOPE OF WORK

- A. The Contractor shall perform the OpenSFS Development further described in the Statement of Work incorporated in this Contract.
- B. The Contractor shall address the projects described herein as well as the milestone-tasks, which are the units of work, and the milestones and deliverables described in the *Milestones & Deliverables* section of this document.
- C. The Contractor shall furnish all personnel, supervision, materials, supplies, equipment, tools, facilities, transportation, testing, and other incidental items and services necessary for performance of the work. The Contractor shall deliver the materials, products, supplies, reports and residuals, as specified.
- D. Acceptance of the work under this Contract shall be based on the Contractor's performance and completion of the work in consonance with high professional standards and compliance with the delivery and reporting requirements specified herein.

#### **Project 1.**

##### ***Technical Description and Approach***

Narrative providing technical description and approach to work.

##### ***Management Approach***

This section identifies the standard processes used when developing any of the projects, and will be used for each of the projects listed above.

##### ***Project Milestone Detailed Overview***

1. **Scope Statement:** Contractor shall provide a brief (2-3 pages) summary of their understanding of the problem statement and resulting project scope to be reviewed by the OpenSFS Project Approval Committee (PAC) and submitted for approval or rejection by the Contract Administrator (CA). This statement shall include:
  - a. Problem statement

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- b. Statement of high-level project requirements/goals to be satisfied
  - c. Statement of in-scope and out-of-scope work for project
  - d. Statement of project assumptions or constraints
  - e. Statement of key deliverables and milestones
2. **Solution Architecture:** Contractor shall provide a document that outlines requirements, use cases, and a solution framework in an effort to address items defined in the scope statement. The Solution Architecture shall be reviewed by the PAC and submitted for approval or rejection by the CA. This document shall include:
- a. Identification of requirements that address the subproject requirement
  - b. Defined list of use cases for Test Plan
  - c. Defined list of Acceptance Criteria-the acceptance criteria will be defined for the entire subproject (excluding the Delivery task) and are measured during the Demonstration Milestone.
  - d. Proposed high-level solution that addresses the subproject requirements
3. **High-Level Design (HLD):** Contractor shall document a recommended solution that addresses the subproject requirements. This document shall describe how the solution will work including basic protocol structures as applicable. The proposed solution shall be documented with the elements below and reviewed by the PAC and submitted for approval or rejection by the CA:
- a. Description of the solution elements/implementation components and how they will work
  - b. Explanation of why/how the proposed solution will address the subproject requirements
  - c. Identify any risks or unknowns with the proposed solution
  - d. Define API and protocol changes, if applicable
  - e. Estimation of engineering and unit testing effort needed to complete the solution
  - f. Prototype code for the solution, if complexity requires
4. **Implementation:** Contractor shall complete implementation and unit testing for the approved solution. Contractor shall regularly report feature development progress including progress metrics at project meetings and engineers shall share interim unit testing results as they are available. OpenSFS at its discretion may request a code review. Completion of the implementation phase shall occur when the agreed to solution has been completed up to and including unit testing and this functionality can be demonstrated on a test cluster. Code Reviews shall include:

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- a. Discussion led by Contractor engineer providing an overview of Lustre source code changes
  - b. Review of any new unit test cases that were developed to test changes
5. **Demonstration** Upon functional completion of the feature, Contractor shall demonstrate the appropriate functionality of the subproject. This shall be done through execution of test cases designed to prove the acceptance criteria defined during the Solution Architecture. Demonstration specifics will be defined and mutually agreed to for each subproject in the scope and architecture phases.
- a. **Functional Test Plan:** Contractor shall develop and recommend a functional test plan, as defined by OpenSFS, designed to demonstrate the functional completeness of the feature. The results of functional testing with supporting documentation will be presented to OpenSFS for review.
  - b. **Performance Test Execution:** Contractor shall define and recommend a set of performance tests as defined by OpenSFS to document the performance characteristics for performance related features. Contractor shall execute these tests and present results of these tests to OpenSFS for review. OpenSFS shall provide adequate test platforms when scale is necessary for performance testing as recommended by Contractor and defined by OpenSFS.
6. **Delivery:** Contractor is planning for annual feature releases and quarterly bug-fix releases. Contractor shall maintain its own repository that will be open to the community. All features and fixes from Contractor will be submitted to the community for inclusion in the canonical tree. All software development within the scope of this agreement shall be conducted in a repository that is open to the community. Contractor's completion of this milestone shall be based on Contractor's integration of the project development branch into the Contractor tree and integration of these features into a standard Contractor supported release.

Acceptance by OpenSFS of Contractor's completion of each subproject shall be based on Contractor's integration of the project development branch into the Contractor tree and integration of these features into a standard Contractor supported release. This release will then be tested within 20 business days by OpenSFS (performance, stability, feature set compliance) for final acceptance or rejection. Contractor will land the project branch to the tree following internal landing practices and policies.

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## *Project Approval Committee*

OpenSFS shall designate a Project Approval Committee (PAC), comprised of community members that shall have final and documented authority for project-level decision making. The purpose of the PAC is to both facilitate clear decision-making throughout the project and provide an avenue for community collaboration during the project. Timely decision-making will support the advancement of projects and ensure that OpenSFS is well informed about project milestone progress. The OpenSFS board-appointed Technical Representative shall serve as committee chair of the PAC and shall have final authority on all decisions of the PAC subject to the discretion of the OpenSFS board.

OpenSFS shall openly declare the membership of this committee and shall only change this membership during the course of the project with advance notification to Contractor.

## *Milestone-Task Approvals*

A milestone-task is defined as the work or effort necessary to complete a specific project milestone, as described in *Project Milestone Detailed Overview* sub-section within this document, and is a sub-component or step along the way to completing a sub-project or project within the overall contract.

Approval will be required from the OpenSFS Contract Administrator in writing (email is acceptable) before Contractor starts work on a milestone-task.

Approval will be required from the Contract Administrator at the end of each milestone-task, for Contractor to invoice for the milestone.

For all requested approvals, the Contract Administrator will have 2 weeks (10 business days) from work submission or decision request to provide feedback and render a decision. If at a later time there is a dispute by OpenSFS, a separate resolution meeting will be held between OpenSFS PAC and Contractor Senior Leadership to include the CEO and CTO.

## *Subproject Termination*

The Contract Administrator reserves the right to terminate any subproject at any time. In the event of termination of a subproject the Contractor shall terminate work and payment shall be made, if applicable, in accordance with the Terms and Conditions. Milestone will be considered complete once completion is recommended in writing (email is acceptable) by the PAC and approved by the Contract Administrator.

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## ***Project Planning***

Projects contained within this SOW are comprised of Research and Development engineering effort and as such the solutions are not necessarily straightforward or easy to determine. Contractor shall make best efforts to define appropriate target delivery dates based on information available.

With the completion of each milestone, Contractor shall deliver updated estimates for both interim milestone delivery and effort estimates using data and information acquired during the process of the project to refine estimates.

If, during the course of a Research and Development project, information is discovered that was previously unknown and significantly complicates the solution, Contractor shall present this new evidence to OpenSFS with a list of proposed alternate solutions. Some solutions may become so large as to not be able to be completed under the fixed price of the contract. In this event, Contractor shall offer alternate options from which OpenSFS may select that can be completed within the bounds of the contract.

## ***Reporting***

Contractor shall submit a monthly progress report in a format as provided by Contractor and reasonably acceptable by OpenSFS no less than two business days after the last day of each month highlighting progress made on each deliverable. Contractor shall provide documentation of completion as defined in Project Milestones Overview for each deliverable.

## ***Project Meetings***

Weekly project calls shall be held with participation from both Contractor and OpenSFS project team members. The purpose of this meeting is for project team members to gather to discuss progress against plan. OpenSFS attendance shall include at least one PAC member. Contractor attendance to include Senior Engineer assigned to project, Project Manager assigned to project, and any relevant development engineers depending on topic(s) of discussion. Contractor shall provide a standard project review template as recommended by Contractor and defined by OpenSFS to include progress since the last meeting, current activities, risks and issues. Meeting minutes shall be recorded at all project meetings and stored as project artifacts.

## ***Software Licensing and Source Code***

All software developed under this contract shall be submitted under the terms of the OpenSFS contribution agreement.

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## *Lustre Community Development*

Contractor shall submit all GPL Lustre software changes (including test cases) to the community canonical code base. It is at community's discretion to incorporate Contractor's changes into the canonical tree. Contractor shall maintain a separate code repository and make this available to the broader community.

## *Lustre Software Enhancements*

All changes to Lustre software shall be made against a production release of Lustre 2.x for this proposal. Contractor shall independently test and compile all modifications against a production release of Lustre (Production Lustre Release + Contractor patches).

## *Vendor Neutrality*

All software shall be designed and developed to be broadly applicable to the entire Lustre Community. Contractor shall not design or implement to benefit or exploit a particular hardware configuration.

## *OpenSFS Furnished Access and Hardware*

Access to test and development hardware can be negotiated.

## **ARTICLE 2 – PRICE & PERIOD OF PERFORMANCE**

### A. Fixed Price

Project	Description	Exp. Completion	Price
1	Project 1 title	6 months	
2	Project 2 title	12 months	
3	Project 3 title	18 months	

### B. Milestone Information

The work described in ARTICLE 1 - SCOPE OF WORK shall be completed in accordance with the following milestone completion timing for the fixed price indicated in the tables below. OpenSFS acknowledges that delays in approvals of milestones may affect subsequent milestone completion schedules.

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**Project 1:**

*Milestone Chart: Project 1*

<b>Contractor Milestone-Task</b>	<b>Elapsed Time (weeks)</b>	<b>Completion</b>	<b>Milestone completion Payment</b>
Scope Statement	2	Start + 2 weeks	
Solution Architecture	2	Start + 4 weeks	
Design	2	Start + 6 weeks	
Implementation	3	Start + 9 weeks	
Test & Fix	5	Start + 14 weeks	
Demonstration	2	Start + 16 weeks	
Delivery			

**ARTICLE 3 – INVOICES AND PAYMENT**

A. Invoices

The Contractor shall submit its invoice to the following address or via email as directed by the Contract Administrator.

Open Scalable File Systems, Inc.  
P.O. Box 191  
Livermore, CA 94551

B. Payment Terms

The terms of payment shall be NET 30 **Days** after receipt of a proper invoice. Payment amounts shall be less any applicable adjustments, credits, offsets, or tax withholds. Payment on an invoice shall not constitute final acceptance of the related performance.

**ARTICLE 4– INCORPORATED DOCUMENTS**

The following documents are hereby incorporated as a part of this Schedule of Articles of the Contract.

OpenSFS Terms and Conditions (July 22, 2011)  
OpenSFS Contribution Agreement (February 29, 2012)



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## ARTICLE 5 – COORDINATION AND ADMINISTRATION

- A. All matters relating to the administration, performance and non-technical interpretation of this Contract shall be directed to the OpenSFS Contract Administrator. The Contractor shall direct all notices and requests for approval to the OpenSFS Contract Administrator. The OpenSFS Contract Administrator will issue any notices or non-technical approvals to the Contractor.
  
- B. The OpenSFS Technical Representative, as chair of the Project Approval Committee (PAC), will provide technical direction in connection with the work to be performed under this Contract. The term “technical direction” is defined to include (1) direction to the Contractor which will assist in the interpretation of drawings, specifications, or technical portions of the work description; and (2) the review and approval of technical reports, drawings, specifications, and information to be delivered by the Contractor under the Contract, where required. The OpenSFS Technical Representative will issue all technical direction in writing or verbally during weekly project meetings and documented in meeting minutes.
  
- C. The OpenSFS Technical Representative is not authorized to issue any technical direction which would (1) constitute an assignment of work outside the general scope of the work covered by this Contract; (2) change the description of the work to be performed or any applicable drawings, designs, and specifications; (3) change the time or place of performance; the method of shipment or packaging, or the place of inspection, delivery or acceptance; (4) increase the estimated cost for performance of the work or the time required for performance of the work; (5) change any expressed term or condition of the Contract; or (6) unreasonably interfere with the Contractor’s ability to perform and complete the work. Any such change must first be authorized by the OpenSFS Contract Administrator.

## ARTICLE 6 – OPEN SOURCE SOFTWARE

All computer software produced in the performance of this Contract shall be contributed to OpenSFS subject to the OpenSFS Contribution Agreement.

## ARTICLE 7 – KEY PERSONNEL

The personnel specified below are considered to be essential to the work being performed under this Contract. Prior to removing, replacing, or diverting such personnel to other projects, the Contractor shall notify the OpenSFS Contract Administrator reasonably in advance and shall submit justification and proposed substitutions with the same or substantially similar qualifications as the individual(s) being removed, replaced or diverted. The Contractor shall provide the OpenSFS Contract Administrator supporting information on the proposed substitutions (resumes, professional

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training, etc.) in sufficient detail to permit evaluation of the impact on the performance of this Contract.

Name

Title

## ARTICLE 8 – REPORTS

### A. Type of Reports

The Contractor shall prepare and submit the following reports to OpenSFS.

1. Progress Reports (Type A)

Progress reports shall be submitted in accordance with this agreement. The progress reports shall be in a format recommended by the Contractor and defined by the OpenSFS Technical Representative. These reports shall contain a description of work performed during the report period, work planned for the succeeding period, and the labor effort expended by labor category.

2. Final Report (Type B)

A final report shall be submitted upon completion of each subproject and contain a comprehensive summary of all work results and conclusions. The form and content of the final report shall be recommended by the Contractor and defined by the OpenSFS Technical Representative. If so requested, a draft copy of the report shall be provided to the OpenSFS Technical Representative for review prior to final submittal.

### B. Distribution of Reports

1. Reports shall be emailed to the OpenSFS Technical Representative and Contract Administrator.

2. The Contractor shall not distribute reports of work under this Contract to any individual or organization other than those indicated above without prior written approval of the OpenSFS Contract Administrator.

### C. Interim Reports

It is understood there will be other information exchanged between the parties from time to time. This information may be exchanged directly between the parties concerned; formal reporting and distribution is not required for interim reports.

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(END OF SCHEDULE OF ARTICLES)