

# SCEAPI: A Unified Restful Web APIs for High-Performance Computing

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The development of scientific computing is increasingly moving to web and mobile applications. All these clients need high-quality implementations of accessing heterogeneous computing resources provided by clusters, grid computing or cloud computing. We present a web service called SCEAPI and describe how it can abstract away many details and complexities involved in the use of scientific computing and provide essential RESTful Web APIs including authentication, data transferring and job managements of creating, monitoring and scheduling jobs. Then we discuss how to build our computing environment that integrates computing resources from 15 HPC centers all over China, and how to add and encapsulate new applications into this computing environment so as to provide a unified way of using these applications in different high-performance clusters based on SCEAPI. Finally, use cases are given to show how SCEAPI works, including examples of installing the ATLAS Monte Carlo Simulation application and processing jobs submitted by the ARC Computing Element (ARC-CE) from CERN.

## Primary Keyword (Mandatory)

Computing middleware

## Secondary Keyword (Optional)

High performance computing

## Tertiary Keyword (Optional)

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