

rootJS - Specification

PSE - Software Engineering Practice

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STEINBRUCH CENTER FOR COMPUTING

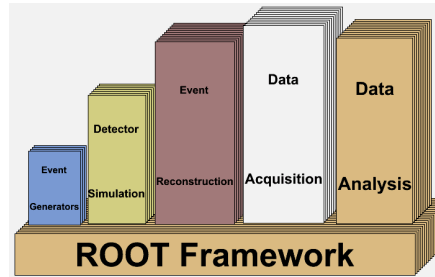
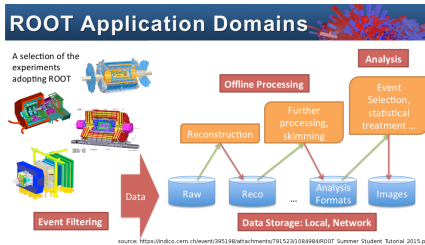


Outline/Gliederung

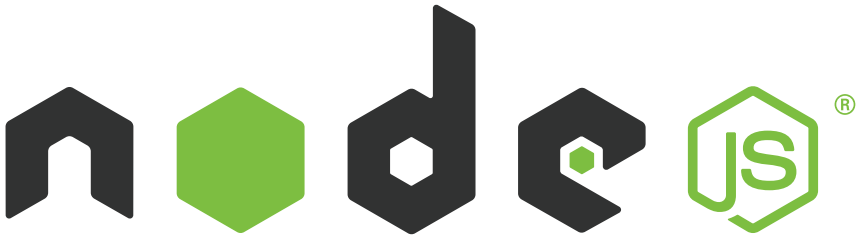
- 1 Purpose
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- 3 Product Environment
 - Software
 - Hardware
- 4 Product data
- 5 Product interface and functions
- 6 Scenarios
 - Scenario 1
- 7 Use Cases
 - Event Viewer
- 8 System Model
 - Initialization
 - Call a feature
- 9 Test Cases

Purpose

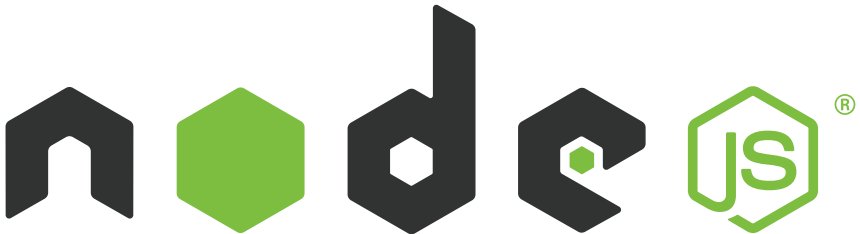
- process and visualize large amounts of scientific data (CERN)
- features a C++ interpreter (CLING) - i.e. used for rapid and efficient prototyping
- persistency mechanism for C++ objects



- open source runtime environment
 - develop server side web applications
 - act as a stand alone web server



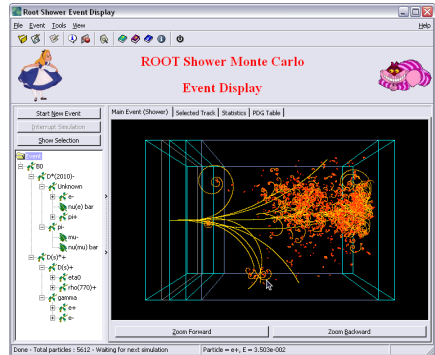
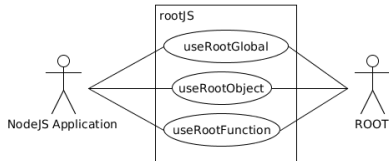
- open source runtime environment
 - develop server side web applications
 - act as a stand alone web server
- Google V8 engine to execute JavaScript code
- rootJS bindings realized as native Node.js module written in C++



Product interface and functions

Scenario 1

Event Viewer



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 - Global variables
 - Global functions
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Names





- Functions and classes have the same name as in Root
- Global variables can be called using `Get[Variable]` and `Set[Variable]` methods

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- By looking at the object type an corresponding v8::Handle will be generated and returned to node
 - If the result is an object this will be done recursively

Test Cases

-  CERN. *ROOT application domains*. Dec. 2015. URL: <https://root.cern.ch/application-domains>.
-  CERN. *ROOT Shower Event Display*. Dec. 2015. URL: <https://root.cern.ch/rootshower00png>.
-  *Node.js logo*. Dec. 2015. URL: <https://nodejs.org/static/images/logos/nodejs-light.eps>.
-  Danilo Piparo and Olivier Couet. *ROOT Tutorial for Summer Students*. Dec. 2015. URL: https://indico.cern.ch/event/395198/attachments/791523/1084984/ROOT_Summer_Student_Tutorial_2015.pdf.