Roadmap for Sandhi Development Engineers

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About this Document

This document provides a roadmap to the Integration Engineers of Virtual Labs to transform their labs sources from Integration level 0 to Integration level 5.
This document describes the steps to be undertaken, reference documents and the necessary support needed by the Integration Engineers during the transformation process.

Pre-requisites

The Integration Engineers must have knowledge of:
Sandhi
Python/C++
Basics of Scilab
Git

The Integration Engineers are expected to have the following system requirements:
Ubuntu 12.04/14.04
32-bit/64-bit processor

Integration levels

During the integration process, the source code of the labs move through various levels of automation. The objective of the document is to help you transform your lab sources

from Level 0 to Level 5 as described below:
Level 0: Knowledge of labs which need to be ported to Sandhi
Level 1: Having proper knowledge of each experiment in that lab and plan the experiment into generic blocks based on functionality
Level 2: Create XML file for the block (for front-end) and write code in python/C++ to implement the functionality (for back-end)
Level 3: Connect the blocks and perform the experiment
Level 4: Validate the results obtained from the observation table
Level 5: Put up final experiment in virtual lab website for end user
You must document the steps taken during the integration process in the wiki page of your lab repository on GitHub.

Transformation Process from Level 0 to Level 5

The task of a Sandhi Development Engineer is to porting the experiments to level 5 from its current level. Described below is the process of porting of experiments at each level.

Contents:

Level 0: Knowledge of labs which need to be ported to Sandhi

1. Identify the labs which can be potentially ported to Sandhi
2. Have a brief idea about the objective of those labs

Level 1: Having proper knowledge of each experiment in that lab and plan the experiment into generic blocks based on functionality

Case 1: If you have performed the experiment in some other software.

1. Break down the experiment in multiple modules
2. Plan the architecture of the experiment in terms of those modules
3. Decide the functionality of each block in a generic manner to facilitate usability
4. Make a technical specification document of your plan

Case2: If you have no knowledge of the experiments to be ported.

1. Interact with the domain expert and obtain a thorough understanding of the experiment
2. Break down the experiment in multiple modules
3. Plan the architecture of the experiment in terms of those modules
4. Decide the functionality of each block in a generic manner to facilitate usability
5. Make a technical specification document of your plan

Note: An in-depth understanding of technical aspects of the experiment is not necessary. The understanding must be more about the functionality expected from the experiment.

Level 2:Create XML file for the block (for front-end) and write code in python/C++ to implement the functionality (for back-end)

1. According to your Technical Specification Document, create the required XML files for the front-end.
2. For the functionality aspect, code in either C++/python depending on your expertise.

Level 3: Connect the blocks and perform the experiment

1. Make sure all the required blocks have been made.
2. Connect the blocks accordingly to create .grc file and perform experiment.

Level 4: Validate the results obtained

1. Consult the domain expert for validation of the experiment or validate them yourself by using correct sample data.

Level 5: Put up final experiment in virtual lab website for end user

1. Upload the validated .grc files to your respective virtual lab website.

Note: End-user must have Sandhi installed in his/her system to run the .grc file.

Timeline for deliverables

Task	Timeline	Deliverable
Level 0 - Level 1	.5 Week	Knowledge of objective of the all experiments in lab
Level 1 - Level 2	1.5 Week	Come up with the architecture
Level 2 - Level 3	2 Week	Created blocks
Level 3 - Level 4	1	Validation
Level 4 - Level 5	1.5 Week	.grc files of completed project

Conclusion

Now you have concluded the porting of the labs to Sandhi. Push all your changes to the GitHub repository and send a confirmation email to the Sandhi team.

Important Links

Github Link - http://github.com/gnu-sandhi/sandhi.git
Forums Link - http://forums.fossee.in/