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SIMULINK[®] / MATLAB[®] and Version Control Training

Motivation

Team-based system design in Simulink/MATLAB requires coordination of modeling activities between team members. If not managed well, dealing with many different versions of (sub-) designs leads to severe loss in productivity, reduced confidence in the product quality, and low levels of customer service. Version control is the key to managing your organization's Simulink/MATLAB designs.

- How much time does your team spend finding and synchronizing the latest model versions?
- How much team productivity is lost, because the status of a given model, script or function was not clear?
- How easy, if possible at all, is it to revert to your last working model after bad changes?
- How much effort is involved to identify and merge modifications made by multiple engineers to one model?
- Is it important to know the exact version of a set of models, Libraries and parameter files (a system configuration) released to customer or supplier when an issue is reported?
- How long does it take you to retrieve released system configurations, so that you can help your customer?
- How confident are you that you have integrated the correct (sub-) design versions?

The software engineering discipline of version control has mature and proven methods and tools that can help you to effectively deal with above challenges. MonkeyProof Solutions developed a workshop to help system and control engineers to master the principles of version control for Simulink and MATLAB. Whilst the workshop is built on Subversion, a well known Open Source Software standard for version control, the lessons learnt translate easily to other version control software like CVS, MS Source Safe, Clear Case etc.

Content

This workshop introduces version control for control, software and systems engineers using MATLAB / Simulink. The morning will introduce the basic concepts of version control, like versioning models, check-in and -out, locking, copy-modify-merge, committing file changes, change sets, central repository, local working copies, update, etc and show how multiple engineers can work in parallel on the same MATLAB / Simulink design in a coordinated and controlled fashion, using these concepts.

The afternoon focuses on the extra challenges graphical (Simulink) models introduce in case of comparing (differencing) or combining (merging) different versions of a model and how basic Simulink features can help for a good system architecture that allows for parallel development. Also we will introduce tooling to support differencing and merging Simulink models.

We will discuss best practices on repository layout (e.g., where to put models, generated code, and hand-written code), branching and merging strategies, and workspace management. In addition, we will cover how to organize for collaborating between organizations and across locations and how to address disaster recovery and business continuity. The day will wrap up outlining how to leverage the tremendous value of the Open Source Software community (as opposed to merely using the software).

Aim

After completion of the workshop, attendees shall have a good understanding of version control concepts in general, working experience with the Subversion system as well as knowledge of MATLAB and Simulink specific features and add-ons to be able to manage the design in a well-controlled manner.



Prerequisites

A basic knowledge of MATLAB / Simulink and a basic understanding of software engineering concepts are required.

Target audience

MATLAB / Simulink designers and architects, team leads, and system engineers.

Training Details

Date, Time, & Location

TBD

Agenda

- 09:00 Coffee & introduction to the people and agenda
- 09:30 MATLAB / Simulink – managing many M-files and Simulink models
 - How to keep track of all dependent files and changes to these files?
 - Version control, the solution from software engineering
 - The basics of version control in general
- 10:00 The basics of version control with Subversion
 - What is Subversion?
 - Global revisioning
 - Daily work-cycle
 - Subversion applied to MATLAB M-files
 - Branching & tagging
- 11:00 Hands-on exercise: apply the basics to MATLAB code and Simulink models
- 12:00 Lunch
- 12:30 Challenges with Simulink models
 - Impact of graphical source vs textual source (Diff and merge)
 - File-based components and Simulink components
 - Automatically generated code/reports/executables

- 14:00 Hands-on exercise: merging code and merging a model
- 14:45 Break
- 15:00 Enterprise deployment considerations
 - Repository design
 - Collaborating with 3rd parties
 - Collaborating across multiple sites
 - Linking with issue tracking
 - Task-based engineering
 - CollabNet
- 16:30 Taking more than the code from Subversion
- 17:00 End

Price

€ 595,- excl. Dutch BTW/VAT

Including course materials, coffee, tea, and lunch.

Please contact us for training at your site.

Registration and more information

To register, please contact us via:

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