Effective Team-Based Collaboration with Simulink Projects

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How “complex” are the projects you work on?
Complex projects have **Hundreds** of files

Models, libraries, data, scripts, C/C++ code, documents, images, …
Too complex for one person to understand it all
Team Challenges

How to:

1. Begin to work
2. Understand the files
3. Review the changes
You need a development environment that supports team-based collaboration
Simulink addresses these challenges with Simulink Projects
Three Challenges

How to:

1. Begin to work
2. Understand the files
3. Review the changes
Configure the team environment
Leave MATLAB just how you found it
Configure the team environment

### Run at Shutdown
- `clean_up_project.m`  
  `$\text{utilities/\text{project}\_scripts}$`

### Run at Startup
- `configure_paths.m`  
  `$\text{utilities/\text{project}\_scripts}$`
- `set_up_project.m`  
  `$\text{utilities/\text{project}\_scripts}$`
- `load_data.m`  
  `$\text{utilities/\text{load}\_data}$`
Check company utilities version

```matlab
VerCompanyUtils = ver('utilities');
if isempty(VerCompanyUtils) || ~strcmp(VerCompanyUtils.Version, '1.3.1')
    % Warn in this example, (but you may want to
    % throw an error and stop loading the project):
    warndlg('This project requires version 1.3.1 of company_utilities')
    % Perhaps show how to fix this:
    % web('http://www.myExampleCompany.com/how_to_install_utilities')
end
```
Where do I start?

Begin
Understand
Review
Discoverable Entry Points for the team
Three Challenges

How to:

1. Begin to work
2. Understand the files
3. Review the changes
File labels
Sorting and grouping by file labels
File dependencies
File dependencies and labels
Three Challenges

How to:

1. Begin to work
2. Understand the files
3. Review the changes
What’s changed?
What’s changed in my data files?

File Comparison - NXTWayCtrl_Rev_3.mat vs. NXTWayCtrl.mat

Left file: C:s\Users\jghidell\AppData\Local\Temp\Matlab739954667\MATLAB\Local\Temp\Matlab739954667\Temp\NXTWayCtrl_Rev_3.mat
Right file: C:s\work\demo\ETRomboCon\data\design_data\NXTWayCtrl.mat

Click on a column header to sort the table

<table>
<thead>
<tr>
<th>Variables in NXTWayCtrl_Rev_3.mat</th>
<th>Variables in NXTWayCtrl.mat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Size</td>
</tr>
<tr>
<td>KK</td>
<td>2x5</td>
</tr>
</tbody>
</table>

Change Summary: modified (compare)  
Merge (no undo): ---
What’s changed in my MATLAB code?
What’s changed in my Simulink models

[Image of Simulink model changes]

- **.SimulinkProject**
  - Status: Approved
  - Revision: 6/18/20
  - Review: None
  - Classification: None

- **data**
  - Status: Approved
  - Revision: 6/18/20
  - Review: Design
  - Classification: Guy

- **design_data**
  - Status: Approved
  - Revision: 6/18/20
  - Review: Design
  - Classification: Jason

- **models**
  - Status: Approved
  - Revision: 6/24/20
  - Review: Design
  - Classification: Jason

- **controller**
  - Status: Approved
  - Revision: 6/25/20
  - Review: Design
  - Classification: Mike

- **high_level_task_logic**
  - Status: Approved
  - Revision: 15
  - Review: Design
  - Classification: Jason

- **startbalancing**
  - Status: Approved
  - Revision: 6/26/20
  - Review: Design
  - Classification: Jason

- **utilities**
  - Status: Approved
  - Revision: 6/24/20
  - Review: Design
  - Classification: Jason

- **project_scripts**
  - Status: Approved
  - Revision: 6/25/20
  - Review: Design
  - Classification: Jason

- **set_up_project.m**
  - Status: Approved
  - Revision: 6/25/20
  - Review: Design
  - Classification: Jason
Simulink Projects

1. Shortcuts – Begin to work
2. Labels & dependencies – Understand the files
3. File Comparisons – Review the changes
Next Steps

- Simulink Projects is part of Simulink
- Try it out today
- Start managing the complexity of your projects