MATLAB as a Collaboration Platform

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June 9, 2015
Collaboration in Software Development

C/C++  Java

.NET  MATLAB
Collaboration in Software Development
Key Takeaways

- **Use** other people’s MATLAB code, apps and toolboxes
- **Share** your code with others
- **Collaborate** on code development with others
Use

Where do I find code I can use?
MathWorks Hosted Resources

www.mathworks.com/examples
www.mathworks.com/matlabcentral/fileexchange/
Your Colleagues and Corporate Resources

- Email
- Shared directory
- Wiki
- Newsgroup
- Internal code repository
Use

- Where do I find the code I can use?
- What are all the files in the package?
- How do I install the package?
- What is a “path”?
- How do I use the code?
- Will this toolbox work with the products I have?
- Who should I contact if I have problems?
- How do I uninstall this package?
Which files do I need to share?
How should I communicate to the user information such as
– how to install?
– where to start?
– how to use?
What is the best way to manage the MATLAB path?
How should I package the code?
How should I distribute the code?
Packaging and Sharing MATLAB Apps

**Summary**

- Packaging interface
- Automatic dependency analysis
- Package meta-information
- Distribution of a single archive
- Automated installation
Custom Toolbox Packaging

- Custom Toolbox
  - Consistent set of MATLAB code files
  - Displayed in Add-on Manager

- Packaging tool:
  - Includes code, data, apps, and documentation
  - Automatically includes dependent files
  - Documents required products
  - Create single file for distribution and installation
  - Automated installation and path management

- Add-on manager to view details and to uninstall
Benefits of App and Toolbox Packaging

- **Author:**
  - Automatic packaging of all necessary files
  - No need for an install script
  - No need for explicit path management
  - Convenient communication with end-user

- **End-User:**
  - No need for manual installation steps
  - No need to manage MATLAB path
  - Convenient learning model
  - Version management
  - Simple uninstall mechanism
Share and Use the Code: Other Challenges
Share and Use the Code: Other Challenges

Code updates
Share and Use the Code: Other Challenges

f(x)

Feedback
Share and Use the Code: Other Challenges
Share and Use the Code: Other Challenges

- How not to lose the code?
- How to track changes?
- How to revert changes?
- How to change my code without interfering with others?
- How to send changes to everyone?
- How to manage multiple versions of code?
- What if two people made changes to the same document at once?
- What is source control?
Software Development is Teamwork

- Feature turnaround time is *getting shorter*
- Requirements and functionality *evolve rapidly*
- Collaborative development is a fast growing workflow
  - Smaller teams achieving goals faster and more efficiently by sharing code and ideas
- **Key to survival** is the capability to *manage code*
Collaborate: Source Control
Collaborate: Source Control
Managing & Sharing MATLAB Code

GitHub

- Website for people collaborating on code
- Can be installed on intranet
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