Sharing MATLAB Based Applications

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Moving from Ideas and Data to Results

Access
- Files
- Software
  - Code & Applications
- Hardware

Explore & Discover
- Data Analysis & Modeling
- Algorithm Development
  - for k=1:max
  - x = fft(dat)
  - y = 20*log1
- Application Development

Share
- Reporting and Documentation
  - PDF
  - doc
  - Html
- Outputs for Design
- Deployment
  - MATLAB
  - .NET
  - Excel
  - C/C++
  - .exe
  - Java
  - .dll

Automate
How Will You Share the Work You Have Done in MATLAB?

- Generate documentation of your computations and results
- Package and distribute your MATLAB code to other MATLAB users
- Provide desktop applications so others can use your algorithms without having MATLAB
- Integrate your custom algorithms into a web application to reach a larger community
Sharing Your Work

- Automatically generate reports and documentation
- Package as a MATLAB app or custom toolbox
- Deploy applications to other environments
Who Do You Need To Share Your Work With?

Deploy your MATLAB code to people who do not have MATLAB
The Range of Application Platforms

- Standalone Applications
- Web and Enterprise Applications

- Scale of Distribution
- Application Complexity
- Enterprise Integration
Sharing for the Desktop

- Automatically generate reports
  - Publish MATLAB files
  - Customize reports using MATLAB Report Generator
- Package apps and toolboxes as a single installable file
- Generate standalone applications
Sharing Your Work

- Automatically generate reports and documentation
- Package as a MATLAB app or custom toolbox
- Deploy applications to other environments
Packaging and Sharing MATLAB Apps

- Create single file for distribution and installation into gallery

- Packaging tool:
  - Automatically includes all necessary files
  - Documents required products
Toolbox Packaging

- Package your toolbox as a single installer file
  - Contains all of the code, data, apps, documentation, and examples
  - Checks for dependent files and automatically includes them
  - Documents required products

- Included folders and files automatically appear on path when installed

- View details and uninstall toolboxes with Manage Custom Toolboxes dialog box
Sharing Your Work

- Automatically generate reports and documentation
- Package as a MATLAB app or custom toolbox
- Deploy applications to other environments
Benefits of Deploying MATLAB Code

- Domain experts maintain ownership of ideas, algorithms, and applications
- Flexibility to integrate with different programming languages
- Implement a common algorithm on different platforms
- Avoid time consuming and error prone re-coding
- Easily adopt algorithm improvements throughout lifecycle
Sharing Programs Outside of MATLAB

- Royalty-free
- Encryption to protect intellectual property
Which Product will Fit Your Needs?

**MATLAB Compiler** for sharing MATLAB programs without integration programming

**MATLAB Compiler SDK** provides implementation and platform flexibility for software developers

**MATLAB Production Server** provides the most efficient development path for secure and scalable web and enterprise applications
Sharing Your Work

- Automatically generate reports and documentation
- Package as a MATLAB app or custom toolbox
- Deploy applications to other environments
  - Without integration programming
Using MATLAB Compiler

Compiled applications can be shared as:

– Standalone desktop applications
– Add-ins for integration with Microsoft Excel spreadsheets
– Components that run MATLAB code against Hadoop

Create professional software with customizable installers, icons, and splash screens … without integration programming
Sharing Standalone Applications

1. **Application Author**
   - MATLAB
   - Toolboxes

2. **MATLAB Compiler**
   - Standalone Application
   - Excel Add-in
   - Hadoop

3. **End User**
   - MATLAB Runtime
Sharing Your Work

- Automatically generate reports and documentation
- Package as a MATLAB app or custom toolbox
- Deploy applications to other environments
  - With integration programming
What If You Need to Share with Many Users?

- Share research data and web-based analytical tools
  - Web access to specialized databases for external researchers
  - Sharing of novel detection or treatment algorithms for use on external researcher data

- Many users accessing your application at one time

- Several versions available

- Centrally managed and maintained
Common Algorithm, Different Integration

Deploy to Desktop

Native code in MATLAB

Deploy to a Web app
Using MATLAB Compiler SDK

Flexibility and value for software developers
- Capabilities for integrating with: C/C++, .NET, Java
- Development toolkit for MATLAB Production Server

Develop a custom application server or deploy with MATLAB Production Server
Integrating MATLAB-based Components

1. Application Author
2. MATLAB
   - Toolboxes
3. MATLAB Compiler SDK
   - C/C++
   - Java
   - .NET
   - MATLAB Production Server
4. Software Developer
   - Application author and software developer *might* be same person

- Application author
- MATLAB
- MATLAB Compiler SDK
- Software Developer
- MATLAB Runtime
Sharing Your Work

- Automatically generate reports and documentation
- Package as a MATLAB app or custom toolbox
- Deploy applications to other environments
  - Develop and test framework
    - For MATLAB Production Server
Scale up with MATLAB Production Server

Most efficient path for creating enterprise applications

Deploy MATLAB programs into production
  – Manage multiple MATLAB programs and versions
  – Update programs without server restarts
  – Reliably service large numbers of concurrent requests

Integrate with web, database, and application servers
MATLAB Application Deployment

- Share MATLAB programs with people who do not have MATLAB
  - Royalty-free distribution
  - Encryption to protect your intellectual property

- Create both standalone applications and components for integration

- Deploy to desktop, web, and enterprise applications
Sharing Your Work

- Automatically generate reports and documentation
- Package as a MATLAB app or custom toolbox
- Deploy applications to other environments
- Automatically generate standalone C and HDL code
Learn more …

Product and Solutions home pages


Other useful links

– http://www.mathworks.com/examples/
– http://www.mathworks.com/videos/
Thank you