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# **Advanced Agricultural Electronics Networks Development**

Lecture No. 5 outline, Introduction to the IAR IDE

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# Steps to create a new application in the IAR IDE

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- Create a directory for the application
  - My Documents\IAR\`<application name>`
- Open the IAR IDE and create a new workspace
  - Application hierarchy: Workspace/Project/File
  - File/New/Workspace
- Create a new project
  - Project/Create New Project...
    - Select type – ex: c / main
      - Name the project file (within the workspace) and save into the application directory
        - » A file called “main.c” will be created and automatically added to the project
  - Set Project Options
    - Select the project title in the workspace file explorer
    - Project/Options
      - Set the target device type (MSP430F2013)
      - Set the Debugger type to “simulator” or “FET Debugger”
        - » If FET Debugger, set setup/connection to “Texas Instrument USB-IF”
- Rebuild the project to save the workspace
  - Project/Rebuild all
  - Name the workspace and save in the workspace directory

## To add files and groups to the project

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- Copy the files to the application directory
  - IAR/<application name>
- Use the right click context menu
  - Right click on the project title
    - “Add” files or groups
    - “Delete” files or groups – does not remove the file from directory
- Examples and hints
  - Add groups to organize your project, eg:
    - Code. Headers, Documents
  - How to add a group for pdf files
    - Create a group for “Documents”
    - Right click on the group and add a pdf file
    - Right click on the pdf file added and on options, exclude from build
    - Use Tools/Configure Viewers to add “.pdf” using explorer associations

## To compile and download with the IAR IDE

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- Assure that processor type and debug options are set properly
  - MSP430F2013 and simulator or FET debugger and Texas Instruments USB-IF
- Compile
  - Rebuild all if you wish to recompile all files in the project
  - Make if you wish to compile only the changed files
  - Errors will be shown in the messages window at the bottom of the screen
- Download and debug
  - Select Project/Download and Debug
  - Message box should appear indicating “downloading”
  - Wait until debugger is ready
- Run program
  - Select debug/Go or use the debug toolbar

## Debugging your code

- Test the code in the simulator (save FLASHing and time)
- Use single step, and run to cursor functions
  - Single step executes next c code line
  - Run to cursor executes to point of interest
- Use step into, step over, step out functions
  - Step into follows execution into a function
  - Step over executes but does not follow the execution of a function
  - Step out completes the execution of a function and returns to the caller
- Use View to observe variables, I/O, memory
  - Debug must be active for this menu to become available
  - Puchar can be used with the terminal window to view output
  - Watches may be created for particular variables by copying the variable name into the watch expression of the live watch window
  - Use auto to avoid work
  - Use profiling to measure execution time and improve code efficiency