DAVE™ SDK – Introduction

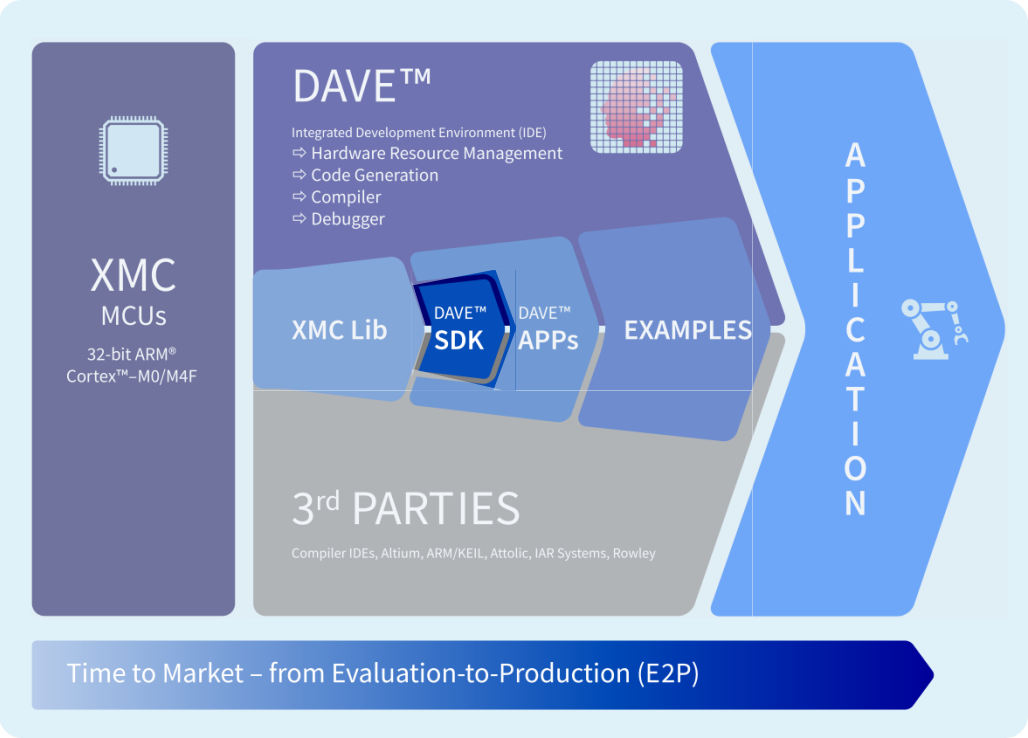
Learning Outcome

- DAVE™ SDK development environment for DAVE™ APPs
- DAVE™ APP development flow
- DAVE™ SDK highlights

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DAVE™ SDK

DAVE™ SDK – Infineon's **free Eclipse based** Software Development Kit for DAVE™ APPs. Develop and modify DAVE™ APPs with simplified language and flow.



Digital
Application
Virtual
Engineer

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DAVE™ SDK Installation

- DAVE™ SDK is installed as part of the DAVE™ download package
- Download DAVE™
  - www.infineon.com/DAVE

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DAVE™ APP Development Flow

01

DAVE™ SDK

Create an APP project

02

DAVE™ SDK

Design APP Graphical User Interface (GUI)

03

DAVE™ SDK

Create Code Generation Template

04

DAVE™ SDK

Create Manifest file

05

DAVE™ SDK

Create update site

06

DAVE™ IDE

Install APP in DAVE™

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DAVE™ IDE

Debug Template

08

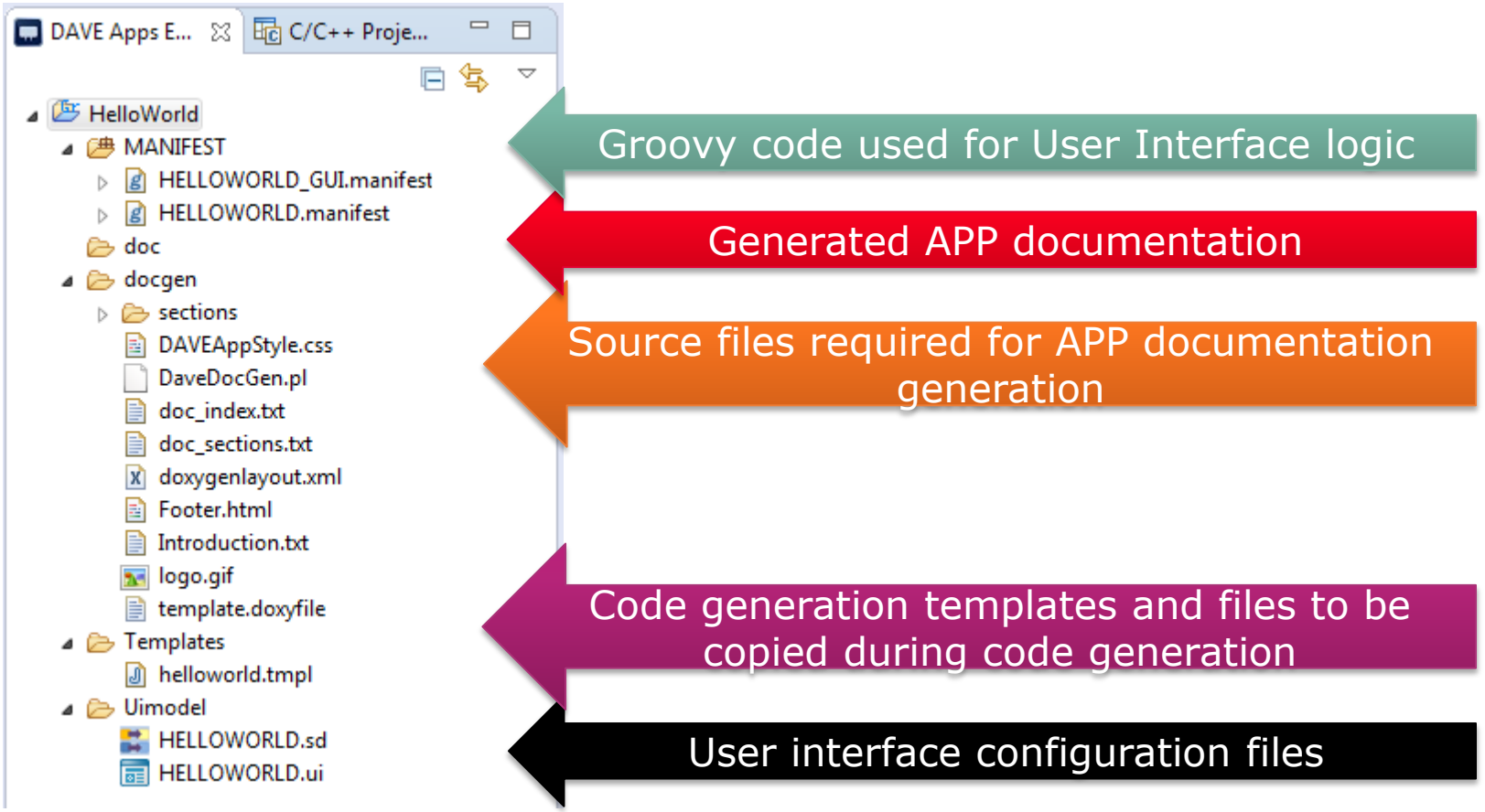
Git

Store APP in Repository

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DAVE™ SDK
APP Project

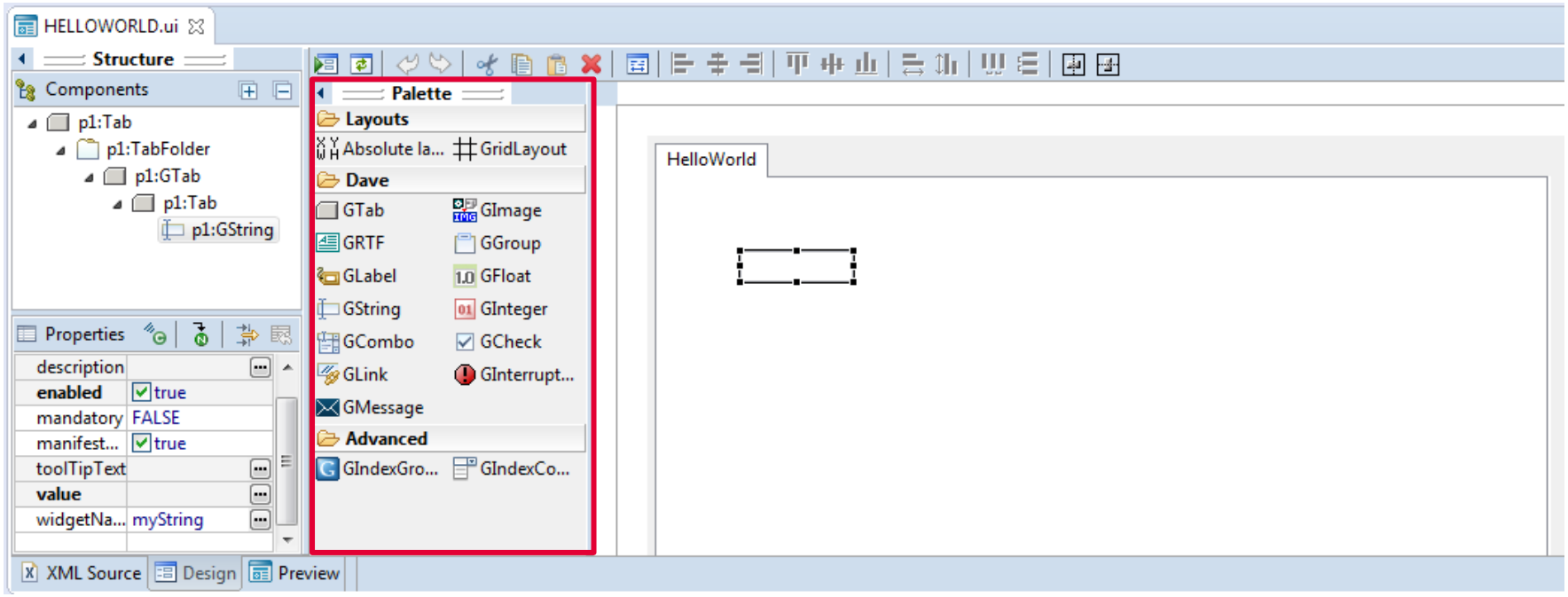
- DAVE™ SDK creates project and add some predefined files to support easier development



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DAVE™ SDK
APP GUI (1/2)

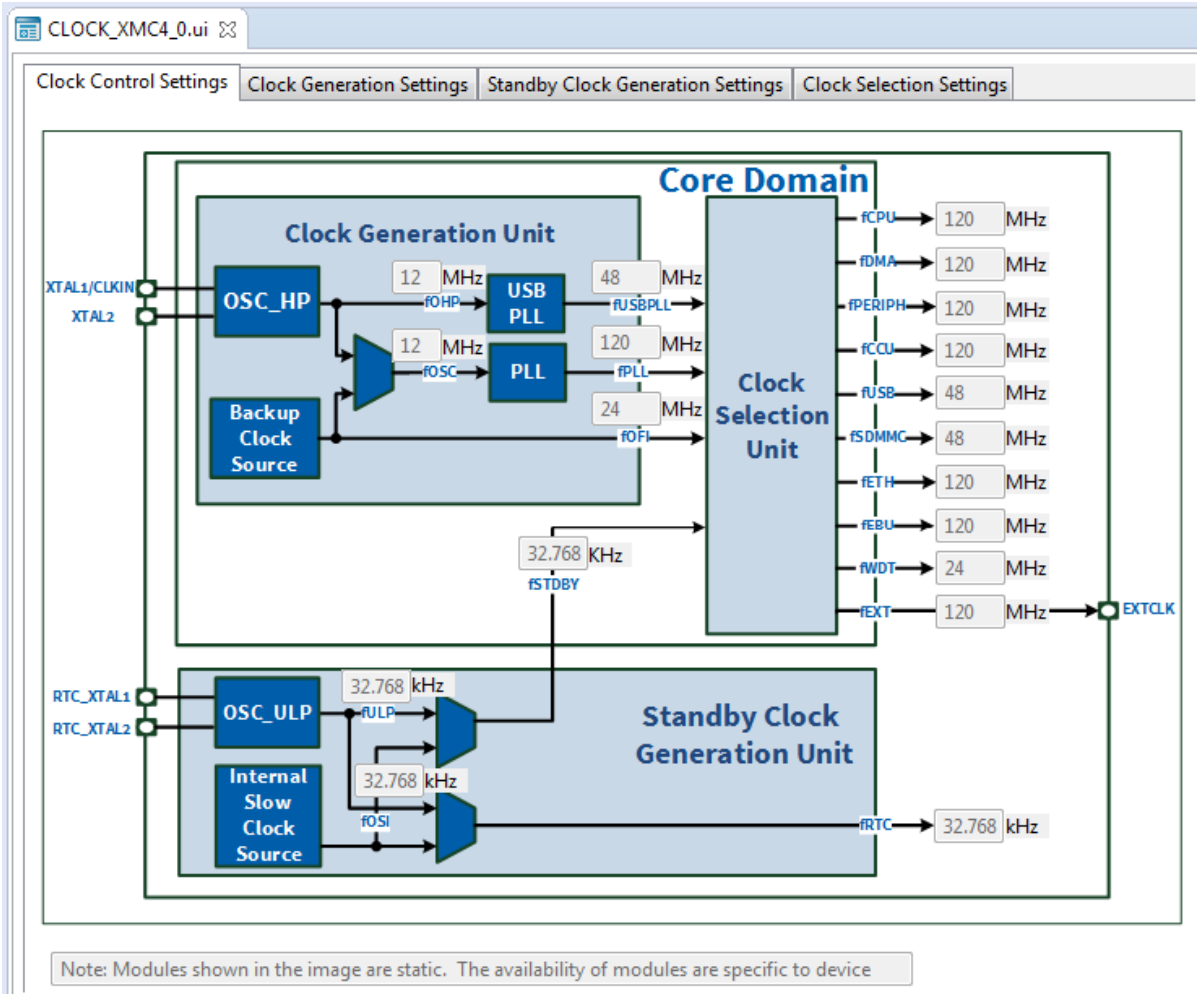
- Graphical User Interface (GUI) designer
  - Easy to use drag and drop functionality for widgets
  - Allows modelling of advanced widgets including rich text information and bit map graphic



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DAVE™ SDK
APP GUI (2/2)

› Example:



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DAVE™ SDK
Code Generation Template

- Code template is a Groovy script executed during code generation
- Possible to execute computation during code generation
- Convenient APIs to get GUI and device data
- Debug features supported

myTemplate.tmpl

```
for (app in appInstanceList) {
    out.print(""" char * ${app.getInstanceLabel()}_global = "${app.myString.value}";
""")
    }
```

Example of Groovy script

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DAVE™ SDK
Manifest (1/3)

- Manifest contains
  - APP properties
  - GUI design including code that validate user input
  - Declaration of required hardware resource groups and required software
  - Declaration of connectivity options
  - Code generation actions

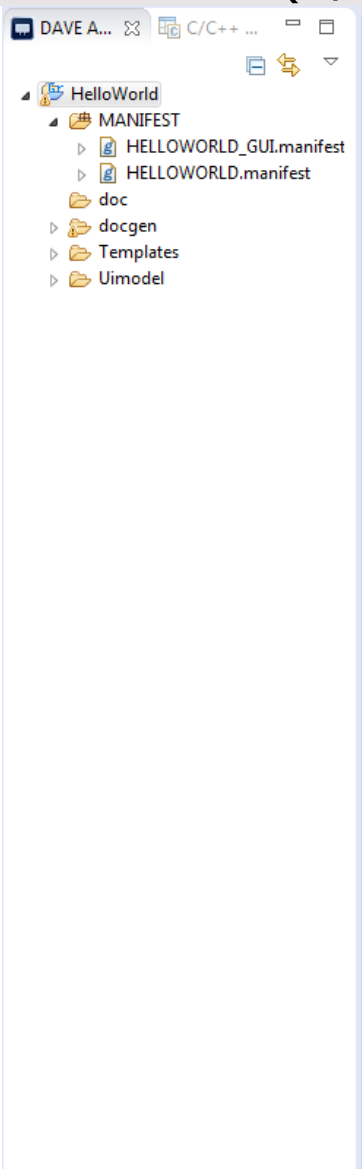
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DAVE™ SDK
Manifest (2/3)

- Manifest is supported by
  - Software editors with syntax highlights and completion functions for efficient coding
  - Comprehensive checks for errors
  - Debugging features

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DAVE™ SDK Manifest (3/3)



HELLOWORLD.manifest

```
// Import statements
import ifx.davex.app.manifest.*
class  HELLOWORLD extends HELLOWORLD_GUI {

    // Note  : Following App properties are mandatory and important
    // Begin : App property section
    def version            = '1.0.0'

    def categoriesDescription = ["Default/SampleApp"]

    // Minimum DAVE version required for the App
    def minDaveVersion          = '4.0.0'

    // Keywords to search in Apps selection view
    def keywords      = ['SampleApp']

    // Software IDs and its required minimum version
    // Example
     def softwareIDs       = [
      "XMC4.5.00.F144.ALL":"1.0.0",
      "XMC4.4.00.F100.ALL":"1.0.0",
      "XMC1.3.01.Q024.ALL":"1.0.0"]


    def singleton     = false
    def initProvider  = false
    def deprecated    = false
    def sharable      = false

    // App short description
    def description = "Hello World"

    // End   : App property section

    // Begin : User variable section
    // End   : User variable section
    MVirtualResourceGroup res;
    // App Constructor
    public HELLOWORLD(DaveEnv daveEnv) {
        res= MVirtualResourceGroup("resource", ["port","*","*","*","*"], true);
    }

    // File Generation
    def generateFiles(){
    generate("myTemplate.tmpl","Helloworld.c")
    }

    //
    // Add main code here
    //
}
```

APP properties

- Executed only at the first instantiation of the APP
- Cannot be changed at runtime

APP Constructor

- Executed for every APP instantiation
- User can program APP logic

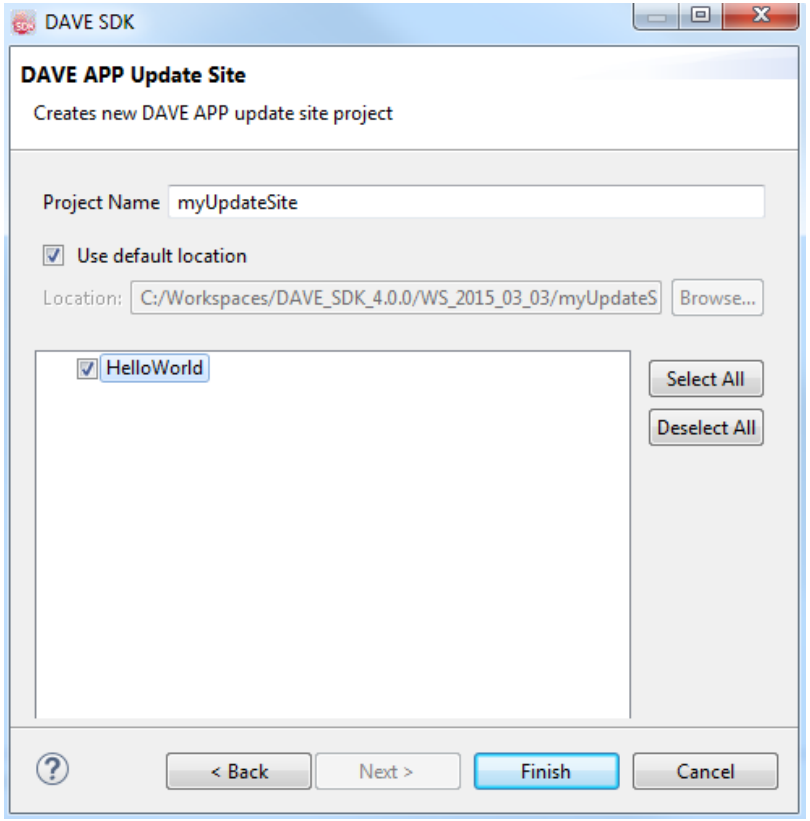
File Generation

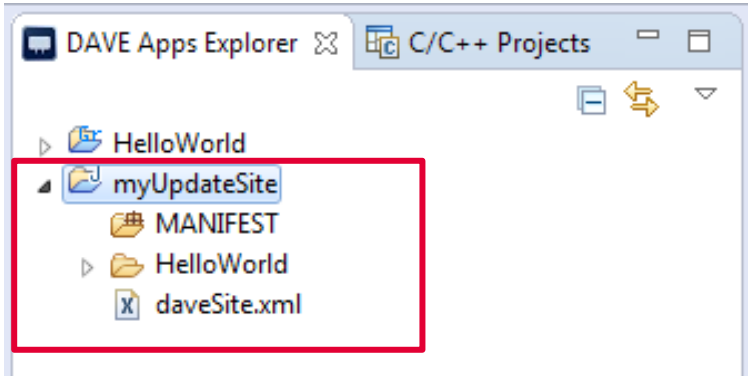
- Executed only once at code generation
- Not executed for each APP instance

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DAVE™ SDK
Update Site

- Update site is used to distribute a set of APPs and install them in DAVE™

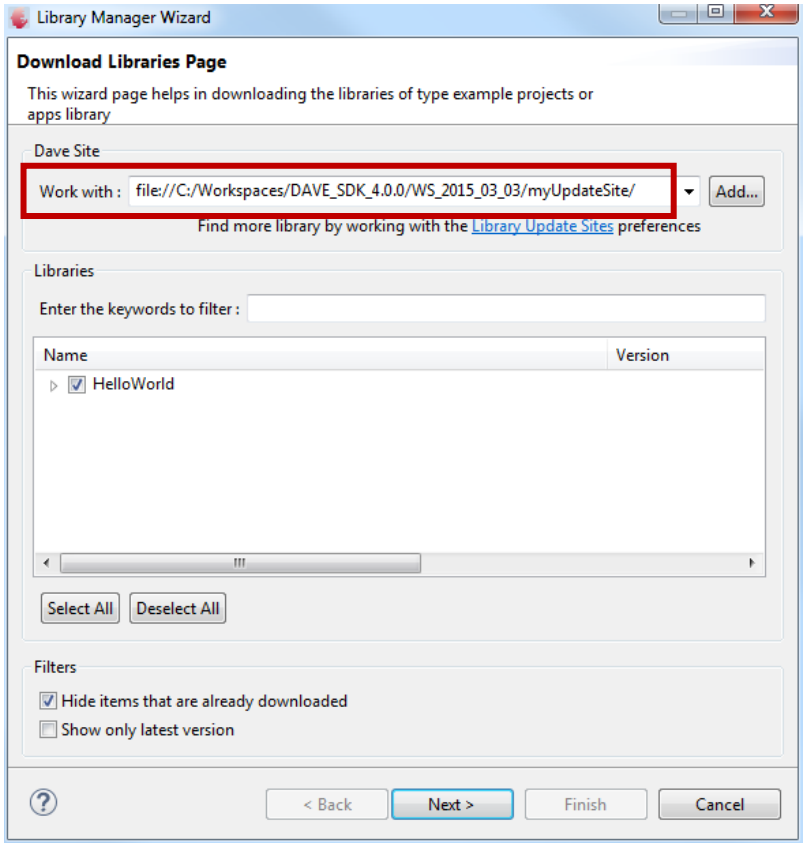




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DAVE™ IDE
APP installation

- APP created in SDK can be installed in DAVE™ IDE
- DAVE™ installs APP if a new version is available in repository



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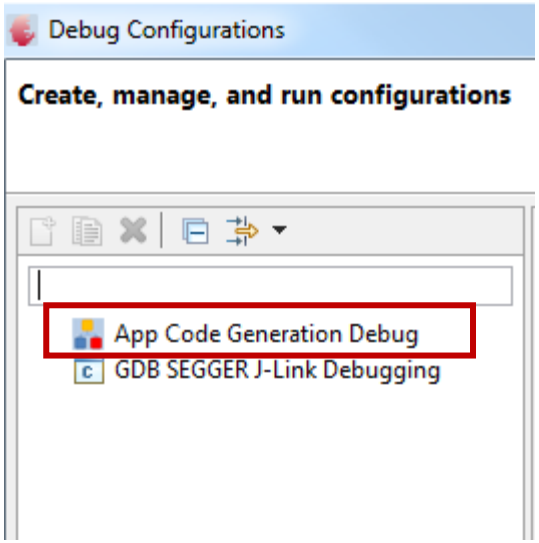
DAVE™ IDE
Template Debug

- Manifest and code templates can be debugged

myTemplate.tmpl

```
1  package Model.APPS.HELLOWORLD.v1_0_0.Templates;
2
3  import Model.APPS.HELLOWORLD.v1_0_0.HELLOWORLD
5  for (HELLOWORLD app in appInstancesList) {
6      // Create a macro for each instance of the APP
7      out.print(""" char * ${app.getInstanceLabel()}_global = "${app.myString.value}";
8  """)
9      }
```

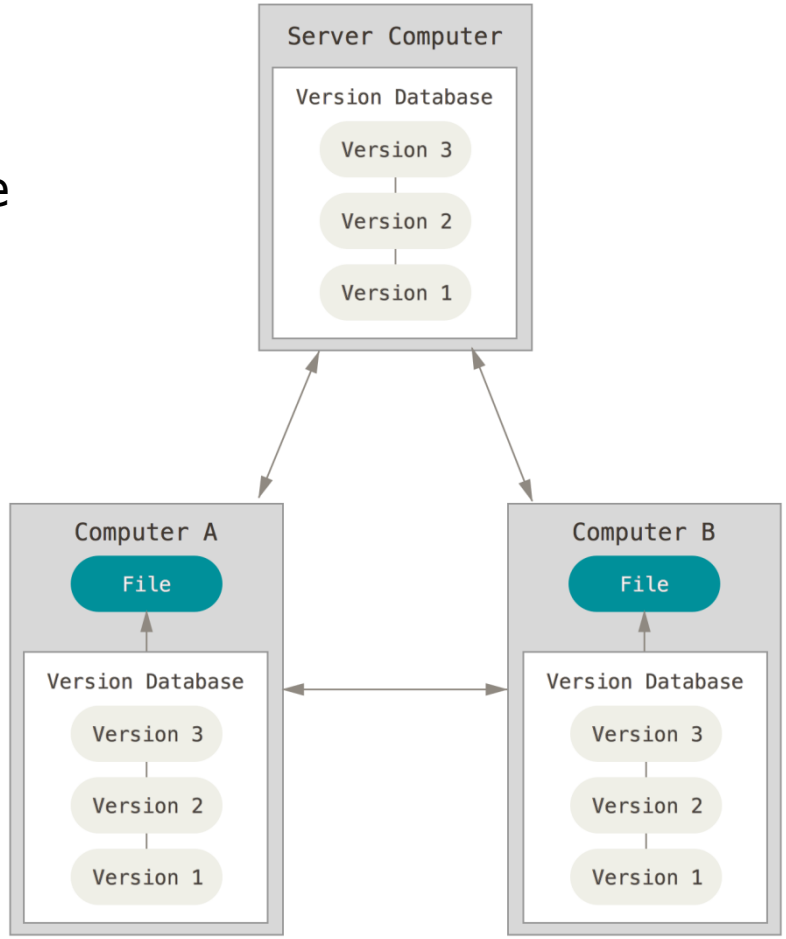
- Easy debugging with App Code Generation Debug option



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Git
APP repository (1/2)

- Distributed version control system
- Create remote repositories anywhere
- Client is a mirror of the server database
- Fast, very efficient with large projects



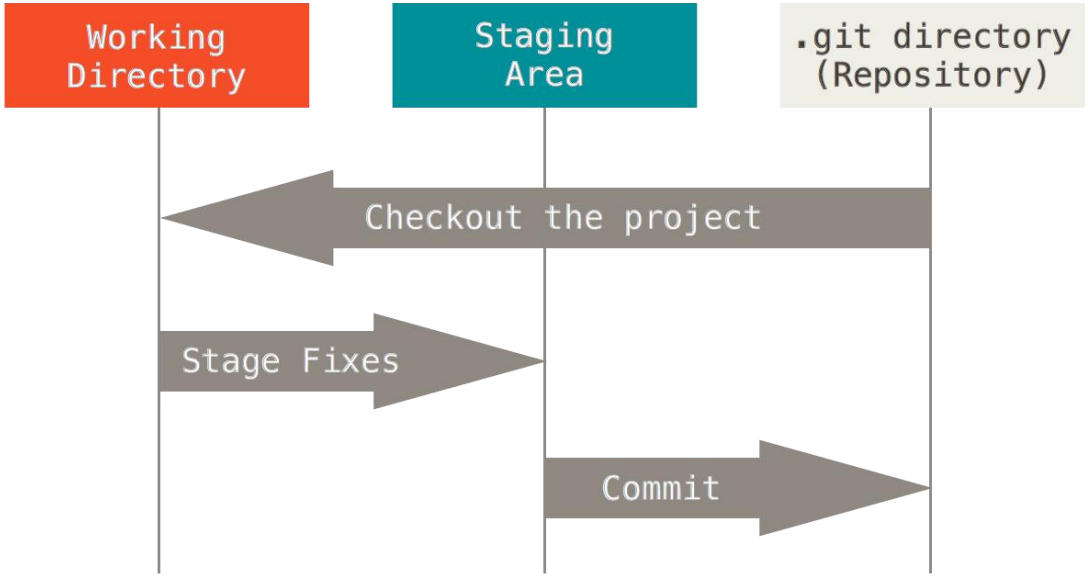
Source: http://git-scm.com

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Git
APP repository (2/2)

Basic Git workflow

1. **Modify** files in your working directory
2. **Stage** files, adding snapshots of them to your staging area
3. Do a **commit**, which takes the files as they are in the staging area and stores that snapshot permanently to your Git directory



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