



A Modernized Developer's Workflow with Domino/XPages

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MWLUG 2014



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Four Seasons, Austin TX
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Defining the Art of Collaboration

Audience



Who Am I?

- developer
- husband
- father
- veteran
- former EMT
- blogger
- ...more than I have space for



IBM **CHAMPION** 

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Who Am I?

Web Developer at **BOLDT** | BEYOND 125 YEARS

- a fourth-generation, family-owned professional construction services firm, in operation since 1889

my focus usually revolves around:

- document control
- productivity and performance metrics
- system integration
- process automation



Agenda

- What and Why
- How? (in the App)
 - Split front-end and back-end (RESTful APIs)
 - HttpServlet
 - OSGi plugin (JAX-RS)
 - XPage w/ xe:customRestService (Java or SSJS)
 - XAgent
 - Back-end primary logic
 - Front-end heavy app
- Observations of a corporate developer
- How? (Outside the App)
- Demos



What and Why?

- Modern web apps
 - using all the fancy new toys
- existing Domino server
 - XPages runtime
 - all the Java server stack power
 - XPages components
 - user / security model
- performance optimizations
 - lots of development tooling
- eases concerns of:
 - testing
 - documentation
 - deployment
- eases sanity



App Concerns: Splitting the App Logic

where does the application logic lie?

- business logic
- workflow logic

server-side logic:

primary logic

- enforceable rules
- notifications
- (additional) server events

client-side logic:

- how the “form” operates
- specifics to UI/UX, or the device (e.g.- camera, barcode scanner)



App Concerns: Back-End

- “best way” of establishing RESTful (or other) APIs:
 - OSGi plugin driven
 - NSF driven
 - HTTPServlets (rather, extending DesignerFacesServlet)
 - xe:restService
 - xe:customServiceBean
 - other (even Domino’s SSJS)
 - XAgent
- adding tooling:
 - OSGi plugins mean we can use “real” Eclipse for development
 - can use things like JAX-RS (which the rest of the JEE world uses!)
 - for those willing/able to make an edit to the Domino servers java.policy file:
 - GSON
 - otherwise the com.ibm.commons.util.io.json way



App Concerns: Front-End Concepts

- you can use all the fancy toys
- you “deploy” your built app to your ODP’s WebContent/ path
- properly structured, you can use back-end mocks for DDE-less preview and edits
- some tooling (angular-cli, webpack, etc.) automates this





App Concerns: Front-End Implementation

- use all the things!!1
- build for deployment
- profit

caveats:

- know what you're doing
- **don't obliterate WebContent/WEB-INF/**



App Concerns: Front-End Deployment

Files changed (1)

+4 -1 package.json

package.json Coverage error Side-by-side diff View file Comment ...

...

8 8

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16 16

"lint": "tslint \"src/**/*.ts\"",

"test": "ng test",

"pree2e": "webdriver-manager update",

- "e2e": "protractor"

+ "e2e": "protractor",

+ "clean": "del 'ODP/WebContent/*' '!ODP/WebContent/WEB-INF'",

+ "build": "npm run clean && ng build -prod -o ODP/WebContent/"

},

"private": true,

"dependencies": {

...

21 21

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"@angular/platform-browser-dynamic": "2.0.0-rc.5",

"@angular/router": "3.0.0-rc.1",

"core-js": "^2.4.0",

+ "del-cli": "^0.2.0",

"moment": "^2.14.1",

"ng2-bootstrap": "^1.0.24",

"reflect-metadata": "0.1.3",

...



Observations of This Corporate Developer

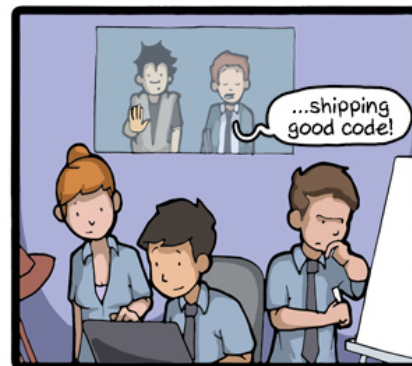
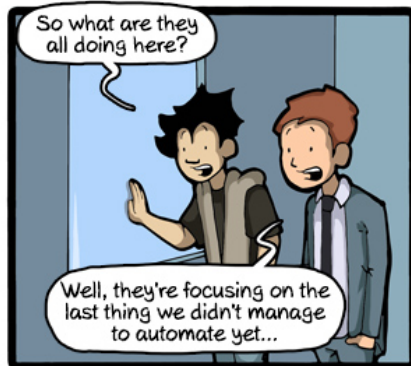
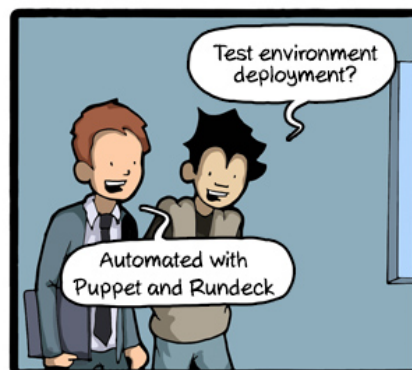
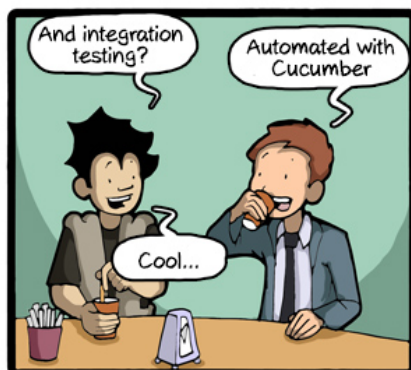
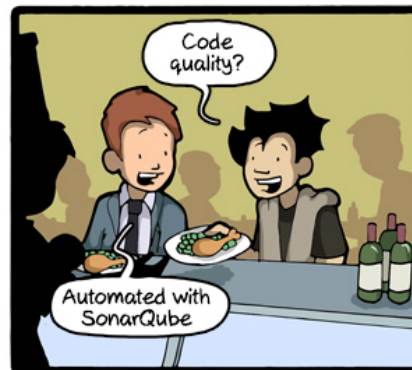
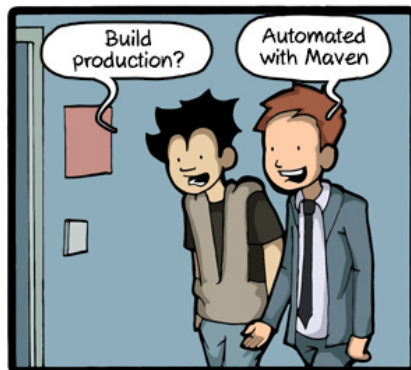
- scm for everything
- if you spend on a task, automate it
 - to the extent available
- build scripts should be:
 - minimal effort (one-line commands are easy)
 - configured as non-invasively as possible
- “anyone” should be able to pull the latest:
 - code
 - build
 - submit a feature branch / PR
- CI / CD considerations:
 - headless DDE builds
 - more?



Why a “Developer’s Workflow?”

- Automation is King
- Focus on the task at hand
- If the steps are reproducible, they should be automated/scripted/etc.
- You can waste your time configuring and setting up
- Or you can get to work







Beyond the App

- GitLab has CI capabilities baked in
- running GitLab in a docker container makes upgrades amazingly simple
- installing the GitLab CI runner on Windows easy
 - much easier than the setup required for [setting up Jenkins for headless DDE builds](#) (a la Cameron Gregor)
 - can set PowerShell as the default shell environment
 - the runner is registered w/ the main GitLab env, can “tag” (e.g.- Windows, DDE, PS)
 - can limit # of simultaneous executions (aka- only one DDE build at a time)
- [the possibilities are endless](#)



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Demos



Choose Your Own Adventure!

Back-End

- [generator-xsp](#)
- [HTTPServlets](#),
[xe:restService](#)

Front-End

- [generator-webapp](#)
- [generator-angular](#)
- [TypeScript](#) setup (simplified, DIY)
- [angular-cli](#) (Angular 2)
- [vue-cli](#) ([templates](#), w/
[browserify](#) or [webpack](#))



Scaffolding an App's ODP (generator-xsp)

Welcome to the good generator-some-app-2 generator!

Modernized Developer's Workflow

File Edit View Insert Slide Format Arrange Tools Table Help All changes saved in Drive

Background... Layout Theme... Transition...

16 What shall we call your app? demo

```
create bower.json
create package.json
create .bowerrc
create ODP/AppProperties/xspdesign.properties
create ODP/Code/dbscript.lsd
create ODP/Resources/AboutDocument
create ODP/Resources/Themes/app.theme
create ODP/Resources/UsingDocument
create ODP/Views/(untitled).view
create ODP/WebContent/WEB-INF/faces-config.xml
create ODP/WebContent/WEB-INF/xsp.properties
create ODP/XPages/index.xsp
create ODP/XPages/index.xsp.metadata
create .gitattributes
create ODP/.project
create ODP/AppProperties/database.properties
create ODP/plugin.xml
create ODP/Resources/IconNote
```

I'm all done. Running **npm install** && **bower install** for you to install the required dependencies. If this fails, try running the command yourself.

19

```
npm WARN demo@ No description
npm WARN demo@ No repository field.
npm WARN demo@ No license field.
λ pc2926 demo-app → ls
ODP bower.json node_modules package.json
```



Scaffolding an App's Front-End 1/2

```
λ pc2926 demo-app → ls
ODP package.json
λ pc2926 demo-app → ng init
installing ng2
? Overwrite package.json? Yes, overwrite
create .editorconfig
create README.md
create src/app/app.component.css
create src/app/app.component.html
create src/app/app.component.spec.ts
create src/app/app.component.ts
create src/app/app.module.ts
create src/app/environments/environment.dev.ts
create src/app/environments/environment.prod.ts
create src/app/environments/environment.ts
create src/app/index.ts
create src/app/shared/index.ts
create src/favicon.ico
create src/index.html
create src/main.ts
create src/polyfills.ts
create src/test.ts
create src/tsconfig.json
create src/typings.d.ts
create angular-cli.json
create config/karma.conf.js
create config/protractor.conf.js
create e2e/app.e2e-spec.ts
create e2e/app.po.ts
create e2e/tsconfig.json
create .gitignore
overwrite package.json
create public/.npmignore
create tslint.json
.: Installing packages for tooling via npm
```



Scaffolding an App's Front-End 2/2

```
λ pc2926 demo-app → ls
ODP angular-cli.json e2e package.json src
README.md config node_modules public tslint.json
λ pc2926 demo-app →
```

- change the dev/build scripts to:
 - output to ODP/WebContent/
 - not obliterate your ODP/WebContent/WEB-INF/

```
package.json
Side-by-side diff View file Comment ...

8 8 "lint": "tslint \"src/**/*.ts\"",
9 9 "test": "ng test",
10 10 "pree2e": "webdriver-manager update",
11 - "e2e": "protractor"
11 + "e2e": "protractor",
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12 14 },
13 15 "private": true,
14 16 "dependencies": {

21 23 "@angular/platform-browser-dynamic": "2.0.0-rc.5",
22 24 "@angular/router": "3.0.0-rc.1",
23 25 "core-js": "^2.4.0",
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24 27 "moment": "^2.14.1",
25 28 "ng2-bootstrap": "^1.0.24",
26 29 "reflect-metadata": "0.1.3",
```




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Q&A



Coming to my blog soon...

- more on generator-xsp
- extending beyond my task runner series
 - to include use of webpack w/ front-end apps on Domino/XPages



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Thank You!