

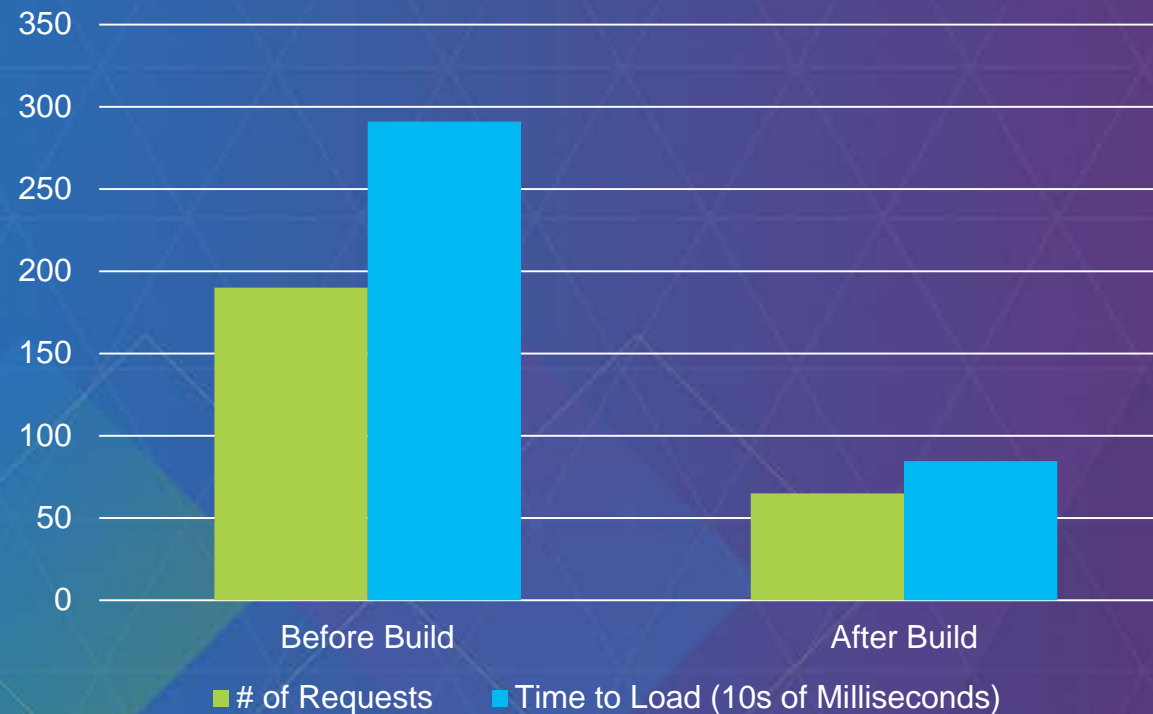
# **Build System Automation for Enterprise JavaScript Applications**

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# Why Build?

Building your application will increase performance

A Lot.





# Project Organization

Set-up your project for success

<http://www.ethnoshirts.com/images/1312%20-%20I%20Love%20Spaghetti.png#!%20love%20spaghetti>

# Look Inside A Project Folder



Folder for the web contents



Folder for all code packages and resources



Project specific modules and widgets



Modules and widgets shared between projects



Main app page – uses hosted ArcGIS API for JavaScript and dojo loader AMD API to load our modules



Project Specific folders e.g. src for a Java Web Projects

# Project Build Resources



Folder for the web contents



Project Specific folders e.g. src for a Java Web Projects



Build Resources



Libraries to support build



Dojo Build Profile



Ant Build File that perform quality checks and dojo



```
return _5.call(it)=="[object Function]";},_7=function(it){return _5.call(it)=="[object String]";},_8=function(it){
return _5.call(it)=="[object Array]";},_9=function(_a,_b){if(_a){for(var i=0;_a[i];){_b[_a[i++]]}}},_c=function(_d,_e
){for(var p in _e){_d[p]=_e[p];return _d};_f=function(_10,_11){return _c(new Error(_10),{src:"dojoLoader",info:_11})
};},_12=1,uid=function(){return ""+_12++;},req=function(_13,_14,_15){return _16(_13,_14,_15,0,req);},_17=this,doc=_17.
document,_18=doc&&doc.createElement("Div"),has=req.has=function(_19){return _6(_1a[_19])?(_1a[_19]=_1a[_19](_17,doc,
_18)):_1a[_19];},_1a=has.cache=_2.hasCache;has.add=function(_1b,_1c,now,_1d){(_1a[_1b]==undefined||_1d)&&(_1a[_1b]=
_1c);return now&&has(_1b);};0&&has.add("host-node",_1.has&&"host-node" in _1.has?_1.has["host-node"]:(typeof process==
"object"&&process.versions&&process.versions.node&&process.versions.v8));if(0){require("./_base/configNode.js").config
(_2);_2.loaderPatch.nodeRequire=require;};0&&has.add("host-rhino",_1.has&&"host-rhino" in _1.has?_1.has["host-rhino"]:(
typeof load=="function"&&(typeof Packages=="function"||typeof Packages=="object")));if(0){for(var _1e=_1.baseUrl||".",
arg,_1f=this.arguments,i=0;i<_1f.length;){arg=_1f[i++]+" ".split("=");if(arg[0]=="baseUrl"){_1e=arg[1];break;}}load(
_1e+"/_base/configRhino.js");rhinoDojoConfig(_2,_1e,_1f);for(var p in _1.has){has.add(p,_1.has[p],0,1);}var _20=1,_21
=2,_22=3,_23=4,_24=5;if(0){_20="requested";_21="arrived";_22="not-a-module";_23="executing";_24="executed";}var _25=0,
_26="sync",xd="xd",_27=[],_28=0,_29=_3,_2a=_3,_2b;if(1){req.isXdUrl=_3;req.initSyncLoader=function(_2c,_2d,_2e){if(!
_28){_28=_2c;_29=_2d;_2a=_2e;}return {sync:_26,requested:_20,arrived:_21,nonmodule:_22,executing:_23,executed:_24,
syncExecStack:_27,modules:_2f,execQ:_30,getModule:_31,injectModule:_32,setArrived:_33,signal:_34,finishExec:_35,
execModule:_36,dojoRequirePlugin:_28,getLegacyMode:function(){return _25};guardCheckComplete:_37};}if(1){var _38=
location.protocol,_39=location.host;req.isXdUrl=function(url){if(/^\/\.\.\/.test(url)){return false};if(/^\/\.\.\/.test(ur1)){
return true};var _3a=url.match(/^([\^\/:]+):([\^\/]+)([\^\/]+)$/);return _3a&&(_3a[1]!="_38||(_39&&_3a[2]!="_39));};1||has.add(
"dojo-xhr-factory",1);has.add("dojo-force-activex-xhr",1&&!doc.addEventListener&&window.location.protocol!="file:");
has.add("native-xhr",typeof XMLHttpRequest!="undefined");if(has("native-xhr")&&!has("dojo-force-activex-xhr")){_2b=
function(){return new XMLHttpRequest();};}else{for(var _3b=["Msxml2.XMLHTTP","Microsoft.XMLHTTP","Msxml2.XMLHTTP.4.0"]
,_3c,i=0;i<3;){try{_3c=_3b[i++];if(new ActiveXObject(_3c)){break;}}catch(e){}}_2b=function(){return new ActiveXObject(
_3c);};}req.getXhr=_2b;has.add("dojo-gettext-api",1);req.getText=function(url,_3d,_3e){var xhr=_2b();xhr.open("GET",
_3f(url),false);xhr.send(null);if(xhr.status==200||(!location.host&&!xhr.status)){if(_3e){_3e(xhr.responseText,_3d);}
else{throw _f("xhrFailed",xhr.status);}return xhr.responseText;}}else{req.async=1;var _40=new Function("return eval
(arguments[0]);");req.eval=function(_41,_42){return _40(_41+"\r\n///< @ sourceURL="+_42);};var _43={},_44="error",_34=
req.signal=function(_45,_46){var _47=_43[_45];_9(_47&&_47.slice(0),function(_48){_48.apply(null,_8(_46)?_46:[])});},
on=req.on=function(_49,_4a){var _4b=_43[_49]||(_43[_49]=[]);_4b.push(_4a);return {remove:function(){for(var i=0;i<
_4b.length;i++){if(_4b[i]==_4a){_4b.splice(i,1);return;}}};}var _4c=[],_4d={},_4e=[],_4f={},map=req.map={},_50=[],
_2f={},_51="",_52={},_53="url:",_54={},_55={},_56=0;if(1){var _57=function(_58){var p,_59,_5a,now,m;for(p in _54){_59=
54[p];_5a=p.match(/^url\:(.+)$/);if(_5a){_52[_53+_5b(_5a[1],_58)]=_59;}else{if(p=="*now"){now=_59;}else{if(p!="*noref"
```

# Moving to Production

Using the dojo build process to optimize and streamline user experiences

# Build Automation Parts

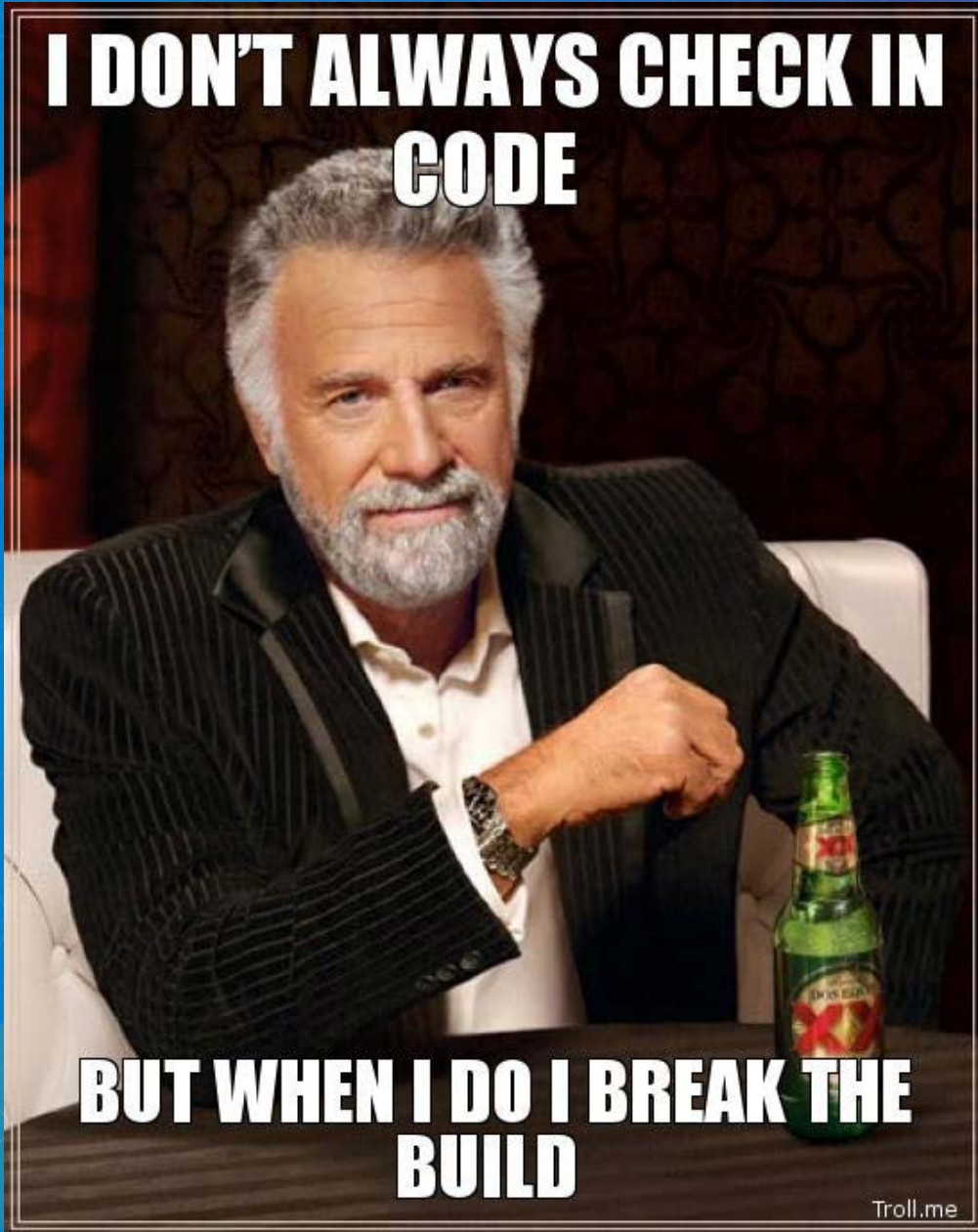
- **API Cache**
  - Download and point to cached versions of dojo libraries and ESRI JavaScript API
  - <https://github.com/Esri/enterprise-build-sample-js>
- **Site Manager**
  - Ensure all dependencies are stored in the define statement
  - Build will work through each dependency recursively
- **Build Profile**
  - Locates all custom and library based source code
  - Best practice to copy libraries before build
  - **Layers Object**
    - Stores localization and path to custom layer file
    - **customBase**: tells Dojo not to include all default classes
    - **Boot**: tells the build to include an AMD loader in your layer file (no need for other files)



# Build ANT File

- **Set Properties**
  - Cache Location
  - Folder and Application Names
  - Files to save after building
- **Run Build**
  - Exec task points to the build profile
- **Delete Extra Bloat**
  - Finally, the ANT script deletes everything not specifically mentioned
  - This keeps the build lean for deployment





## Continuous Integration

# Continuous Integration

- **What is it?**
  - Verify that everything works together frequently (as often as every commit)
- **Other Benefits**
  - Verify that things work in production type builds
  - Verify code quality
  - Deploy to test servers automatically
- **Software Options**
  - Jenkins/Hudson
  - Bamboo
  - Team Foundation Server
  - Many Others...



## What can we do with CI Software?

- Run scripts/builds – ant, maven, shell
- Verify code quality with JSLint, FindBugs, etc
- Run unit tests
- Deploy builds to application servers
- Run checks on every commit
- Run daily production test builds



# Rate This Session

[www.esri.com/RateMyDevSummitSession](http://www.esri.com/RateMyDevSummitSession)

# Get The Code

[www.github.com/Esri/enterprise-build-sample-js](http://www.github.com/Esri/enterprise-build-sample-js)

# Other Sessions

*Friday 10 am - JavaScript Applications for the Enterprise: From Empty Folders to Managed Deployments*