CONNECTING THE WORLD



Developer Day '23 Introduction

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The NNews BBulletin

read() all about it...





Since you've been gone

Last London Forum 2019

- 4 Niagara releases
- 4.9 ----> 4.12
- 4.13 just around the corner









NF

Headline API Additions



4.10 – Header Providers for Web Service

BIHttpHeaderProvider BHttpHeaderProviders

• 4.11 – Alarm / History Archive Providers BArchiveAlarmProvider BArchiveHistoryProvider

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• 4.12 – Http Client Module

HttpClientBuilder IHttpClient IHttpRequest / IHttpResponse



New Module Permissions



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• 4.9 – ACCESS_CLASS

<parameter name="packages" value="sun.misc"/>

• 4.9 – MBEAN_PERMISSION

<parameter name="type" value="server"/>

• 4.9 – THIRD_PARTY_PERMISSION

<parameter name="className" value="org.elasticsearch.SpecialPermission"/>

• 4.11 - KEYSTORE

<parameter name="keystores" value="userTrustStore,userKeyStore"/>
<parameter name="actions " value="read"/>



UX Goodies

define(['bajaux/spandrel'], function (spandrel) {

'use strict';

const HelloWorldWidget = spandrel(
 <span style={{ color: 'blue', fontWeight: 'bold'
}}
 Hello world!

);

return HelloWorldWidget;

4.10

Implicit Batching

UX Media

Spandrel Widgets





});

UX Goodies

4.11 Undoable Commands JQuery Update 3.5.1

4.12 Spandrel Enhancements New Events on Tables Playground examples updated

new Command(
 { undoable: {
 redo: () => console.log('implement redo logic here'),
 undo: () => console.log('implement undo logic here'),
 redoText: () => console.log('get the text displayed for a redo'),
 undoText: () => console.log('get the text displayed for a undo'),
 canRedo: () => console.log('determine if the redo can happen'),
 canUndo: () => console.log('determine if the undo can happen')





News just in

4.13 Enhancements





JACE 9000

• Supported from 4.13







API Additions

- 4.13 Email Auth Enhancements
 - BEmailClientAuthenticator Basic / Oauth
- 4.13 Combined Certificate Alias / Password cleanup
 - BCertificateAliasAndPassword Struct





UX Goodies

4.13 baja.rpc() returns BSON for BComplex4.13 BIWebResource / BCssResource

No longer need css declaration in every widget: `css!nmodule/myModule/rc/myModule`

@NiagaraType @NiagaraSingleton public final class BMyModuleCssResource extends BCssResource { // slot-o-matic code excluded public static final BMyModuleCssResource *INSTANCE* = new BMyModuleCssResource();

private BMyModuleCssResource()

super(BOrd.make("module://myModule/rc/myModule.css"));

// reference this class in your BJsBuild constructor

Search 'uiChangelog' in docs for all of these and more





Gradle Upgrade

Gradle 4 ---> Gradle 7.x

NF 23 Breaking (ish) Change – More on this later....

Build scripts: Groovy ---> Kotlin

Run New Module Wizard for example

```
jar {
  from('src/rc')
  {
    include 'foo.png'
    include '**/*.px'
    exclude 'test.jpg'
  }
```

tasks.named<Jar>("jar") {
 from("src/rc") {
 include("foo.png")
 include("**/*.px")
 exclude("test.jpg")

4.13 Parallel Builds

Build Modules in parallel

Use -- parallel gradle option



C:\Niagara\r413>gradlew jar --parallel <==----> 20% EXECUTING [38s]

- > :alarm-rt:compileJava
- > :js-ux:compileJava
- > :bajaux-rt:compileJava
- > :history-rt:compileJava
- > :program-rt:compileJava
- > :dashboard-rt:compileJava
- > :axvelocity-rt:compileJava
- > :ffmpeg-rt:compileJava
- > :ldap-rt:compileJava
- > :baseRtsp-rt:compileJava
- > :topsecretModule-rt:compileJava
- > :jsonToolkit-rt:jar
- > :kitTest-rt:compileJava
- > :lonAlya-rt:jar
- > :oauth2-rt:compileJava

4.13 JaCoCo code coverage

Unit test coverage reporting

New gradle targets

Report appears in build/reports

gradlew :my-module-rt:niagaraTest
gradlew :my-module-rt:jacocoNiagaraTestReport

signingService-rt > # com.tridium.signing.fox

com.tridium.signing.fox

Element \$	Missed Instructions +	Cov. 🗢	Missed Branches	♦ Cov. ♦	Mi
BSigningChannel		90%		85%	
G BFoxSigningRequester		91%		84%	
BFoxSigningTransport		87%		91%	
Total	277 of 2,859	90%	24 of 166	85%	

1046. private JwtClaims getJwtClaim(String requesterId, NPKCS10CertificationRequest csr) 1047. throws Exception 1048. 1049. JwtClaims jwtClaims = new JwtClaims(); 1050. BNiagaraStation connectionStation = getConnection().getConnectionTarget(BNiagaraStation.class) 1051. .orElseThrow(() -> new IllegalArgumentException("Unable to build JWT claim audience")); 1052. jwtClaims.setAudience(connectionStation.getStationName()); jwtClaims.setExpirationTimeMinutesInTheFuture(JWT EXPIRATION TIME IN MINUTES); 1053. 1054. jwtClaims.setIssuedAtToNow(); 1055. jwtClaims.setIssuer(requesterId); if (csr != null) 1056. 🔷 1057. 1058. jwtClaims.setStringClaim(MSG CSR, csr.encodeToString()); 1059. 1060. 1061. return jwtClaims; 1062. 1062



Niagara Data Service (NDS)

Part of Niagara Cloud Suite



API for 3rd parties

- History / Model data
- Predefined JSON payloads
- Access via cloud no need for a gateway

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• See Craigs Talk later this afternoon



Breaking news *

4.13 Gradle Changes

* well, more like deprecating news, breaking in the future, one day...





Gradle 7 changes (4.13)

- Root file changes now .kts
- environment.gradle ----> gradle.properties
- vendor.gradle ----> vendor extension in build.gradle.kts



build.gradle.kts
 gradle.properties
 gradlew
 gradlew.bat
 settings.gradle.kts



Gradle 7 changes

niagaraModule ----> moduleManifest

```
niagaraModule {
   moduleName = "myModule"
   preferredSymbol = "mm"
   runtimeProfile = "rt"
   modulePart {
      name = "myModule-wb"
      runtimeProfile = "wb"
   }
   modulePart {
      name = "myModule-ux"
      runtimeProfile = "ux"
   }
}
```

moduleManifest {
 moduleName.set("myModule")
 runtimeProfile.set(rt)





New niagara-module.xml file

myModule413-rt
 myModule413-ux
 myModule413-wb
 miagara-module.xml

<?xml version="1.0" encoding="UTF-8"?>
<niagara-module moduleName="myModule413" preferredSymbol="mm"
runtimeProfiles="rt,ux,wb"/>





Dependency Configuration Names

- compile ---> api
- bin/ext dependencies ---> nre
- niagaraModuleTestCompile ---> moduleTestImplementation

dependencies {

compile 'Tridium:alarm-rt:4.10'

compile 'Skynet:terminator-rt:1000'

compile 'Tridium:bcstd/bcprov-jdk15on-1.68'

compile 'Tridium:nre:4.10'

uberjar 'com.example:example:3.1415'
niagaraModuleTestCompile 'Tridium:test-se:4.10'

dependencies {
 api("Tridium:alarm-rt")
 api("Skynet:terminator-rt")
 nre("org.bouncycastle:bcprov-jdk18on")
 nre("Tridium:nre")
 uberjar("com.example:example:3.1415")
 moduleTestImplementation("Tridium:test-se")



Resource Declaration

Another simple syntax shuffle

module-rt.gradle

jar {

from('src/rc') {
 include 'foo.png'
 include '**/*.px'
 exclude 'test.jpg'

module-rt.gradle.kts

tasks.named<Jar>("jar") {
 from("src/rc") {
 include("foo.png")
 include("**/*.px")
 exclude("test.jpg")



4.13 Signing Alias

• Define signing profile and alias in build.gradle.kts

```
signingServices {
   // Disable the use of the default profile;
   signingProfileFactory {
     allowDefaultProfile.set(false)
   }
}
```

```
niagaraSigning {
    aliases.set(listOf("MyCert"))
    signingProfileFile.set(project.layout.projectDirectory.file("my_profile.xml"))
```



Where do I begin?

🏰 New Module Wizard	×			
New Module Wizard Step 1 of 3				
Create Module under Directory				
/C:/Users/h245439/Niagara4.13/tridium 🖿				
Module Name Preferred Symbol Version 1.0 Description Vendor				
Runtime Profiles RUNTIME: Module JARs having core runtime Java classes only, no user interface. UX: Module JARs having lightweight HTML5+JavaScript+CSS user interface only. WB: Module JARs having Workbench or Workbench Applet user interface classes. SE: Module JARs having Java classes that use the full Java 8 Standard Edition (SE) platform API. Create Palette				
. ∎ B	ack 🕨 Next 🗸 Finish 🗙 Cancel			

- docDeveloper Search for 'Upgrading Build'
 - Full migration guide
 - Manual file by file upgrade documented
- Cheaters method (recommended)
 - Run New Module Wizard
 - Copy across src, srcTest, resources

- Fix dependencies
- Fix resources
- Fix module signing



When do I begin?



- Your existing gradle scripts will work for now
 - All the same gradle plugins are still there
 - They will go away one day, so **act soon** to avoid future disappointment!
- The new Gradle scripts will build against 4.10 (LTS)+

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- gradle.properties
 - niagara_home
 - gradlePluginHome
 - nodeHome



A genuine 4.13 breaking change

Sys.getNiagaraHome() / Sys.getBajaHome()

javax.baja.nre.util.SystemFiles

getNiagaraHomeDirectory() getModulesDirectory() getSystemProperties() more....





Module Signing Update

• June 1st change to CAB Guidance

Certificate authorities and issuers shall not issue or sign code-signing certificates unless the private key can be protected via a hardware security module (HSM)

Signing profiles do not currently support certs stored in a HSM

• What is the impact?

Building a module with a Signing Cert obtained after June 1st may fail

• Mitigation

Obtain a new max length Signing Certificate before June 1st Tridium are working on a solution for our gradle builds





Today

- 4 Talks
- 30 minute break for tea (2.45 ish)
- 3 Talks
- Community Developer VayanData
- Ask the Experts Q & A
- Finish 5.30

Welcome Drinks Reception (and canapés) 7:00 PM





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Q & A Session

Submit questions to: supportemea@tridium.com Subject: DEV DAY

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