ArcGIS Runtime SDK for Java: Building Apps

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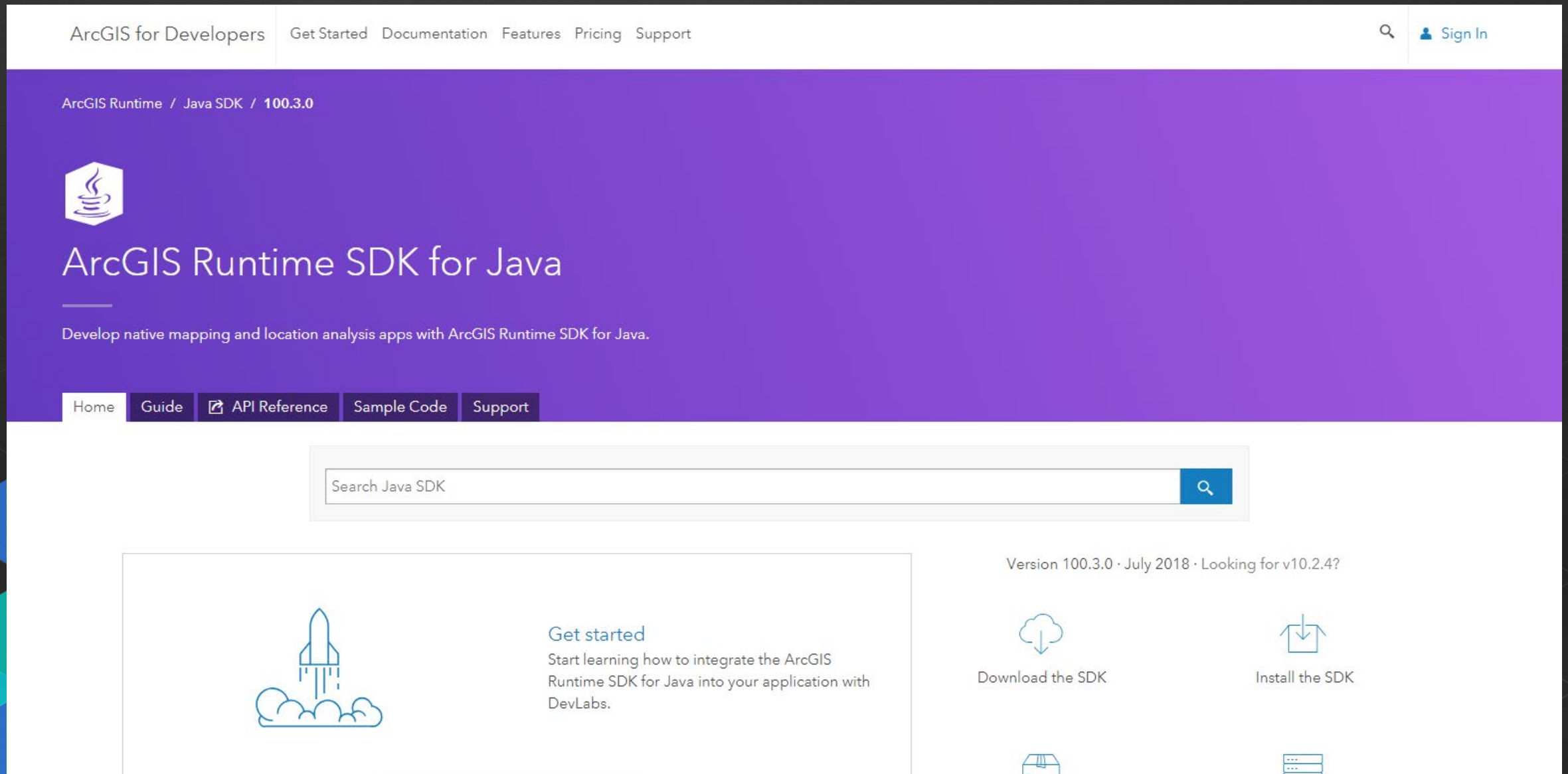
Agenda

- Getting started with 100.4
- JavaFX
- Base maps, layers and lambdas
- Graphics overlays
- Offline data
- Licensing and deployment
- What is happening in the world of Java?
- Questions

Getting started with 100.4

Developers website

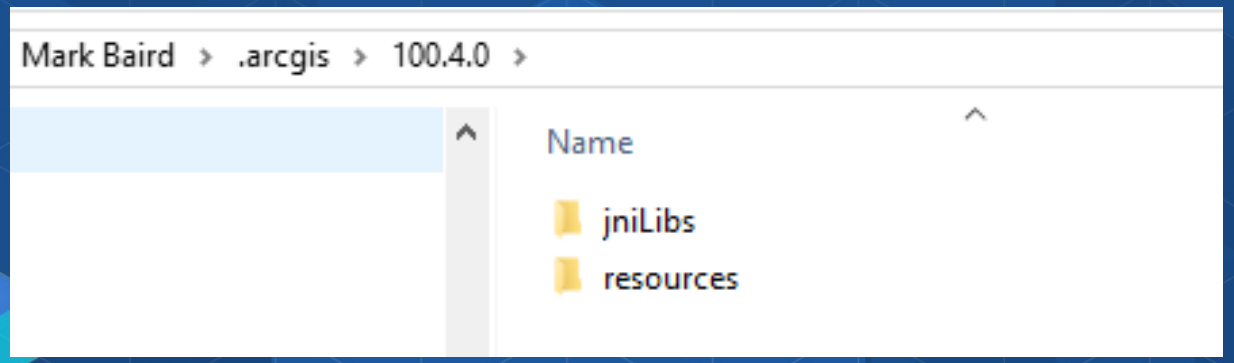


SDK Installation

- There is no longer an install!
- SDK is available in 2 ways:
  - Zip / tgz file with all required files
  - Files will be available in a Maven repository
    - Use Gradle for dependency management
    - Use a Gradle or Maven plugin

Gradle build scripts

```
1   apply plugin: 'eclipse'
2   apply plugin: 'application'
3   //apply the ArcGIS Java SDK Plug-in for Gradle With_3D-Add_Graphics-Surface_Placement
4   apply plugin: 'com.esri.arcgisruntime.java'
5   buildscript {
6       repositories { maven { url 'https://esri.bintray.com/arcgis' } }
7       dependencies { classpath 'com.esri.arcgisruntime:gradle-arcgis-java-plugin:1.0.0' }
8   }
9   arcgis.version = '100.4.0'
10  // download javadoc
11  eclipse.classpath.downloadJavadoc = true
```

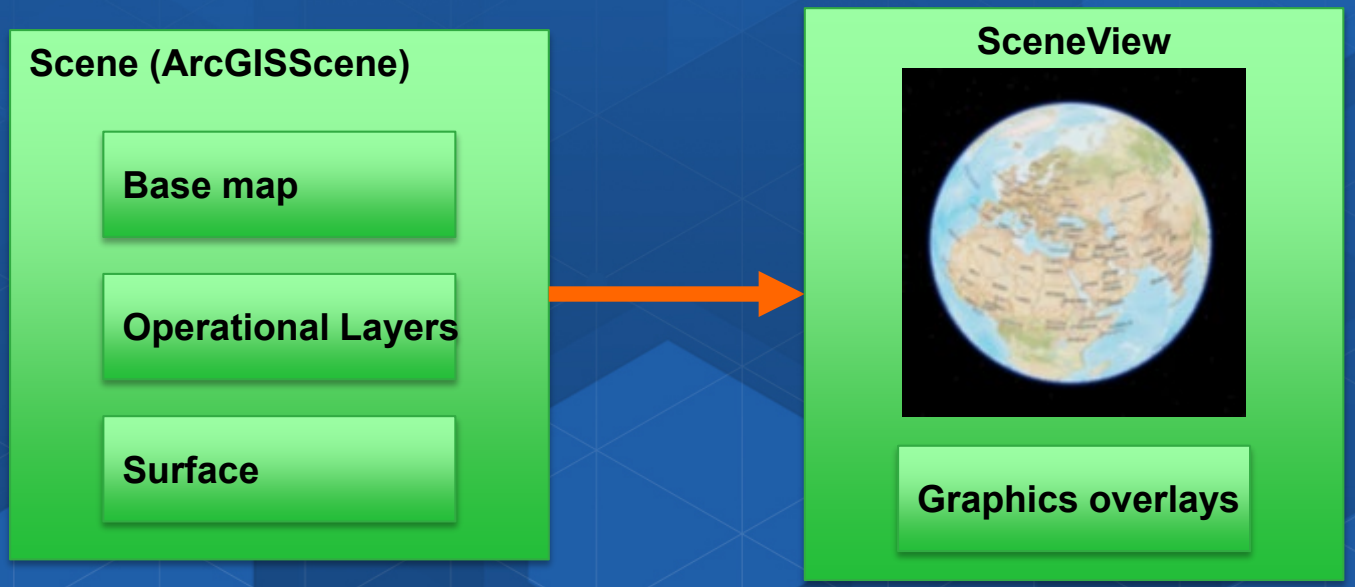


Maven™

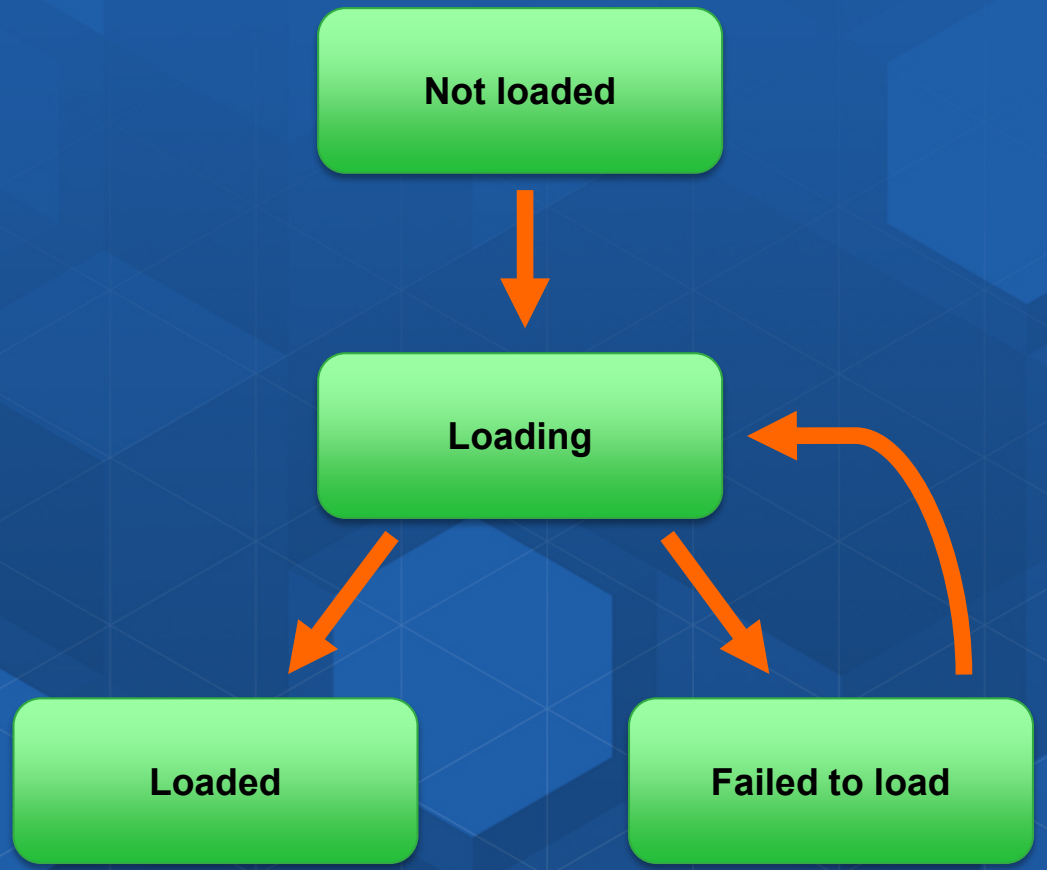
Base maps, layers and lambdas

Writing 2D applications

Writing 3D applications



Loadable pattern

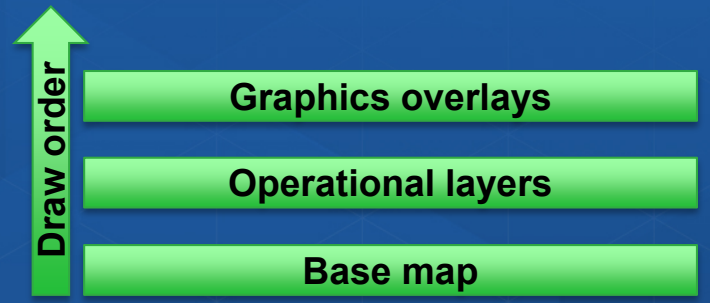


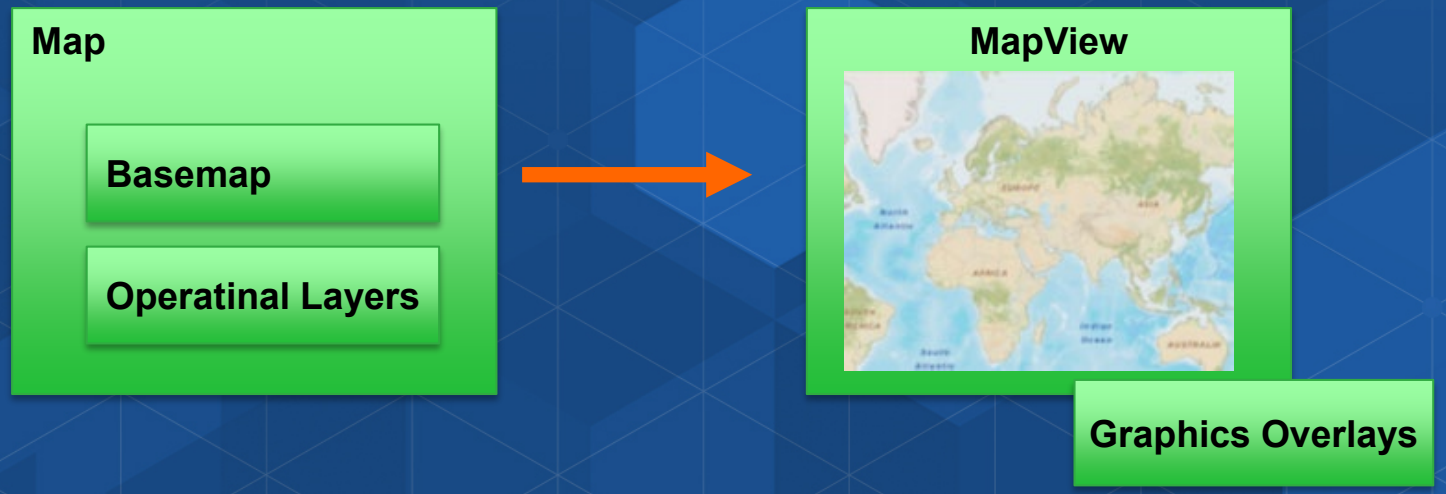
Demo: Maps, scenes and layers

Graphics Overlays

Graphics overlays (Graphics layers in 10.2.4)

- Used to display temporary or fast updating items
- Can be used to display point, lines or polygons
- Can be rendered in the same way as feature layers
  - Symbols, Unique value renderers, etc
- Graphics overlays are part of the Mapview or SceneView
- Not persisted





Graphics Overlays

- Can contain mixed graphic geometries
- Can have multiple graphics layers
  - Helpful for performance improvements
  - Consider grouping similar graphics together
  - Consider grouping moving and static graphics
- Graphics overlays have 2 rendering modes
  - Dynamic
  - Static

Demo: Graphics overlays

Offline data

Offline

Services Pattern

Desktop Pattern

Licensing and deployment

License your application

- Choose a license level:
  - Lite
  - Basic
  - Standard
  - Advanced
- See https://developers.arcgis.com/java/latest/guide/license-your-app.htm
- Choose license method
  - Named user
  - License key

License key

- **Use the setLicense method before your app uses ArcGIS functionality**

```
public static void main(String[] args) {
    // set license
    ArcGISRuntimeEnvironment.setLicense("runtimelite,1000,ru

    // launch application
    Application.launch(args);
}
```

Named user licensing

- Log into your portal to get the license key

```
// connect to ArcGIS Online or an ArcGIS portal as a named user
    // The code below shows the use of token based security but
    // for ArcGIS Online you may consider using Oauth authentication.
    UserCredential credential = new UserCredential("user", "password");

    // replace the URL with either the ArcGIS Online URL or your portal URL
    Portal portal = new Portal("https://your-org.arcgis.com/");
    portal.setCredential(credential);

    // load portal and listen to done loading event
    portal.loadAsync();
```

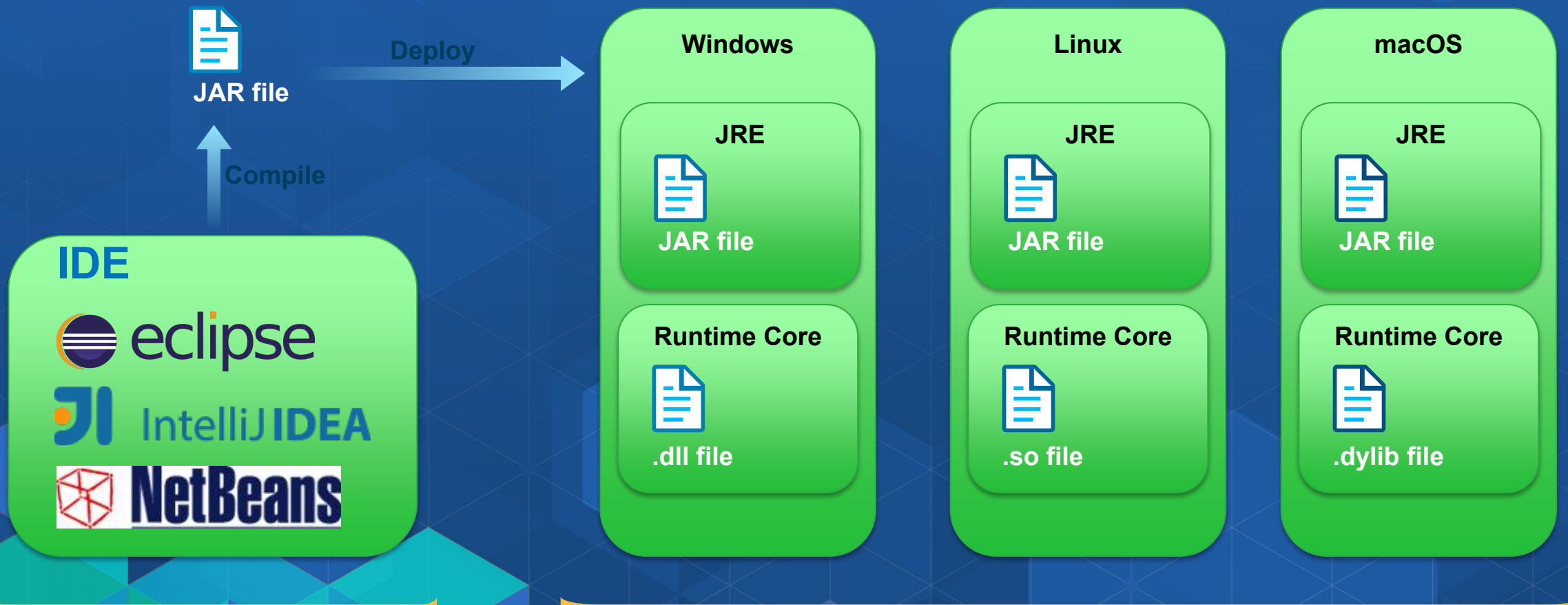
Named user licensing (part 2)

```
portal.addDoneLoadingListener(new Runnable() {

  @Override
  public void run() {
    // get license info from the portal
    LicenseInfo licenseInfo = null;
    try {
      licenseInfo = portal.getPortalInfo().getLicenseInfo();
    } catch (Exception e) {
      // code here to deal with error state
    }
    // obtain the license info as a string
    String licenseJson = licenseInfo.toJson();

    // Add code here to save the JSON license information.
    // This string needs to be saved on local storage.
    // Apply the license
    ArcGISRuntimeEnvironment.setLicense(licenseInfo);
```

Java Runtime development and deployment



Java
DOWNLOAD
Java Platform (JDK) 11

What is happening in the world of Java?

End of Public Updates for Oracle JDK 8

Oracle will not post further updates of Java SE 8 to its public download sites for commercial use after January 2019. Customers who need continued access to critical bug fixes and security fixes as well as general maintenance for Java SE 8 or previous versions can get long term support through Oracle Java SE Subscription or Oracle Java SE Desktop Subscription. For more information, and details on how to receive longer term support for Oracle JDK 8, please see the Oracle Java SE Support Roadmap.

Oracle to charge for Java from Jan 2019

May 1st, 2018 · 13 Comments

Oracle have announced that, "after January 2019", Java SE 8 public updates will not be available for "business, commercial or production use" without a commercial license.

Organisations will now need to take stock of all their software running Java SE 8 and start to work out what potential bill they are looking at next year.

Finding Java

The Java package – that will already be available within your organisation – includes a tool called "Java Usage Tracker" that will report on:

JavaFX will be removed from the Java JDK

Oracle's rich media web technology will be broken out of standard Java as of JDK 11, and will proceed at its own pace

What is happening in the world of Java

- We've been watching is closely
- It's not all bad news and there is a plan!
- 100.4.0 is released and certified on Java 8 Oracle JRE.
  - If you've got an app based on 9 or 10, easy to move back to 8!
- Will release an article on how to work with Java 11.
- JavaFX is NOT part of Java 11!
  - Has been moved to an open source project.
  - Binaries available from Gluon.

Java 11 is here!

- Don’t take an upgrade lightly!
  - Your application is likely to need work.
  - Warning if using internal APIs
  - Jdeps is a good tool for checking for internal APIs
  - You may have issues with 3rd party libraries!
- Modularization
  - We will not initially be modularizing the API
  - Will be addressed with a wider re-achitecture of runtime core.

Our plans going forward

- There will be a cost for using Java 8 from Oracle
  - A security update may force this!
- You can migrate to Java 11 (LTS)
- Avoiding support costs will mean regular Java upgrades.
- 100.4.0 is the final release based on the Oracle JDK
- 100.5.0 will be based on an OpenJDK 11 (possibly AdoptOpenJDK)

Questions

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What are we working on next?

- Local Server Dynamic Workspaces
- Take a map offline
- 3D specific
  - 3D Observer scene views
  - Improved rendering of feature layers in 3D
  - Augmented reality for 3D devices
  - Grids (Lat / Long for example) on scene
  - Vector basemap support for 3D