

# Pred-Závere ná



Dnes (informatívne):

- " .jar súbor a vytvorenie a podpísanie spustite nej aplikácie
- " java webstart a jnlp
- " Netbeans, Scene Builder a FXML

Na budúce (informatívne):

- " Java Reflection Model
- " funkcionálna Java 1.8
- " závere né vyhodnotenie



# .jar súbor



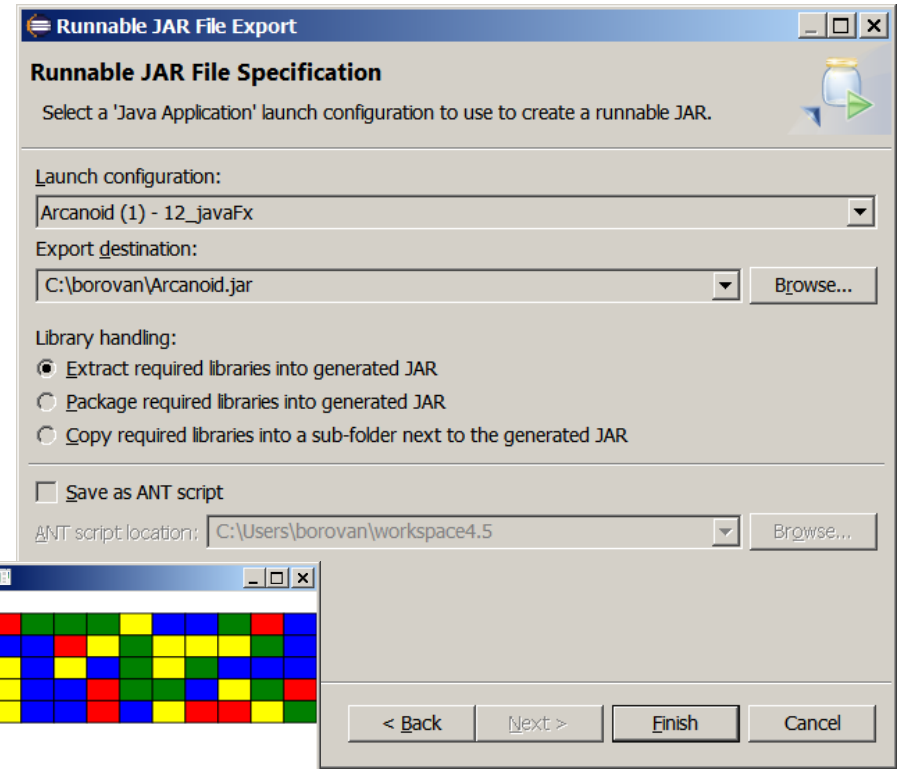
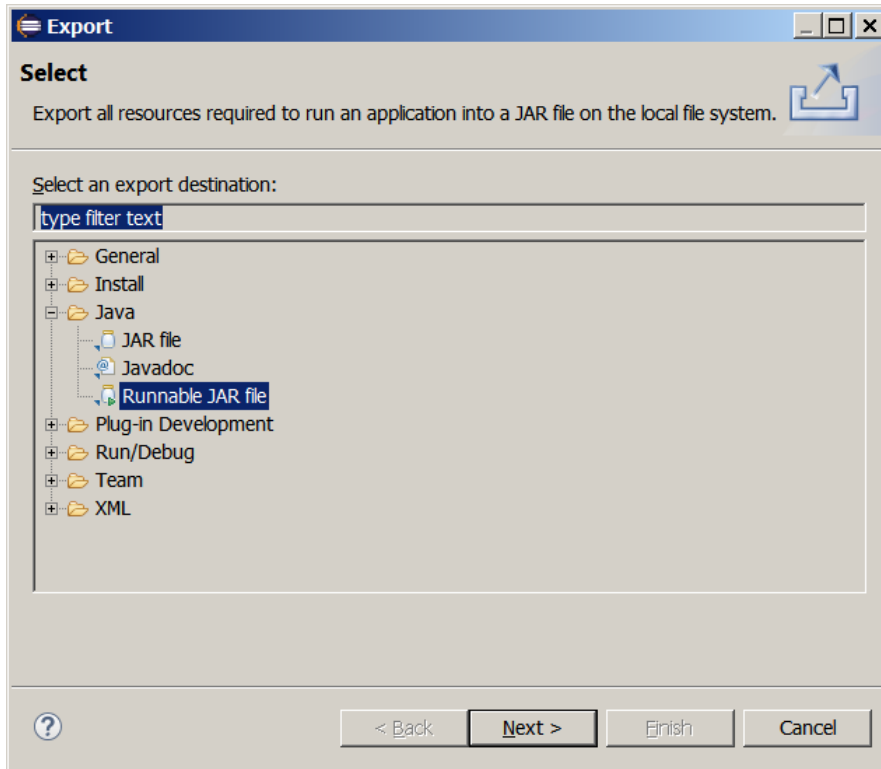
- “ súbor obsahujúci spakované .class súbory, obrázky, audio súbory, a pod.
- “ tie sa dajú ahko spakova aj rozpakova (jdk utilitka jar):

```
jar cvf 11.jar application/*
added manifest
adding: application/application.css(in = 202) (out= 159)(deflated 21%)
adding: application/DragDropDemo.class(in = 4767) (out= 2250)(deflated 52%)
adding: application/DragPane.class(in = 1972) (out= 1027)(deflated 47%)
adding: application/Eurace$Playground.class(in = 5134) (out= 2591)(deflated 49%)
...
```

```
jar xvf 11.jar
created: META-INF/
inflated: META-INF/MANIFEST.MF
inflated: application/application.css
inflated: application/DragDropDemo.class
inflated: application/DragPane.class
...
```

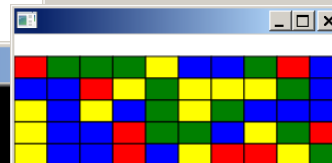
- “ jednoduchzie mô0eme .jar súbor z projektu vygenerova priamo v IDE Eclipse
- “ .jar súbor mô0e by samo-spustite ný
- “ **je sluýné odovdáva projekt/bakalárku/... ako spakovaný a spustite ný .jar**

# .jar z Eclipse



```
c:\borovan>
c:\borovan>
c:\borovan>
c:\borovan>
c:\borovan>
c:\borovan>
c:\borovan>
c:\borovan>
c:\borovan>
c:\borovan>
c:\borovan>
c:\borovan>c:\java8\bin\java.exe -jar Arcanoid.jar
brik collistion 54
player collistion
```

canoid.jar



# Generovanie certifikátu/kl'úča

- aby .jar súbor obsahoval informáciu o pôvode/autorovi, treba ho podpísať
- na to treba mať vlastný podpis, certifikát

keytool -list

- zoznam vygenerovaných kl'účov

keytool -genkey -alias mykey -keystore <url> - vytvorí certifikát v .keystore

Enter keystore password: manager

{java.home}/lib/security/

What is your first and last name?

c:\Users\user\.keystore

[Unknown]: Peter Borovansky

What is the name of your organizational unit?

[Unknown]: FMFI

What is the name of your organization?

[Unknown]: UK BA

What is the name of your City or Locality?

[Unknown]: Bratislava

What is the name of your State or Province?

[Unknown]: Slovakia

What is the two-letter country code for this unit?

[Unknown]: SK

Is CN=Peter Borovansky, OU=FMFI, O=UK BA, L=Bratislava, ST=Slovakia, C=SK correct?

[no]: yes

Enter key password for <mykey>

(RETURN if same as keystore password): manager

keytool -list

Enter keystore password: manager

Keystore type: jks

Keystore provider: SUN

Your keystore contains 1 entry

mykey, 10.5.2015, PrivateKeyEntry,

Certificate fingerprint (SHA1):

5F:1A:4E:75:13:15:A7:BB:44:C5:BB:F1:D6:93:4D:21:

5C:F8:CE:9A

- ke máme (vygenerovaný) k ú , popízeme ním aplikáciu (jarsigner v jdk):

jarsigner arcanoid.jar mykey

Enter Passphrase for keystore: manager

Warning: The signer certificate will expire within six months.

# WebStart - JNLP

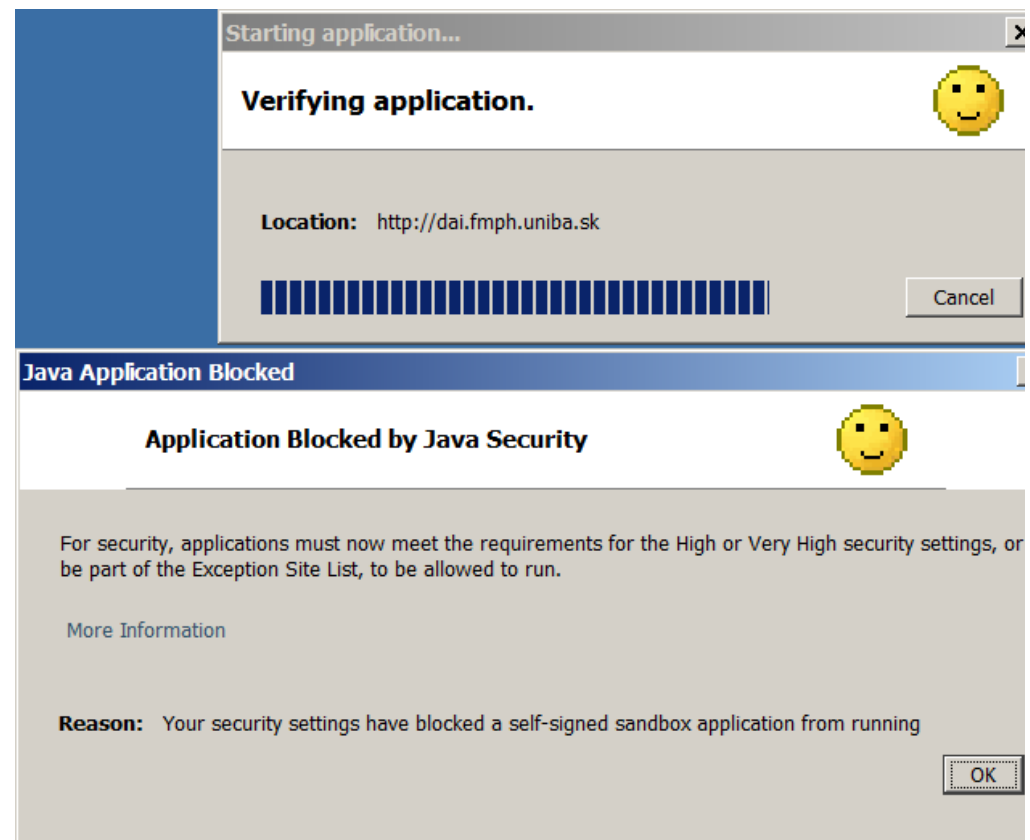


- “ technológia, ako bezpečne stiahnu aplikáciu z netu do browsera a pustiť s právami neohrozujúcimi lokálny počítač (v tzv. sand-boxe),
- “ jnlp (java network launch protocol) popisuje túto aplikáciu vo forme .xml súboru
- “ ak je aplikácia nepodpísaná, tak má obmedzenia, napr. nedostane sa k lokálnym súborom užívateľa a systému...
- “ podpísaná aplikácia má väčšie práva

“ Príklad:

<http://dai.fmph.uniba.sk/courses/JAVA/sources/Arcanoid.jnlp>

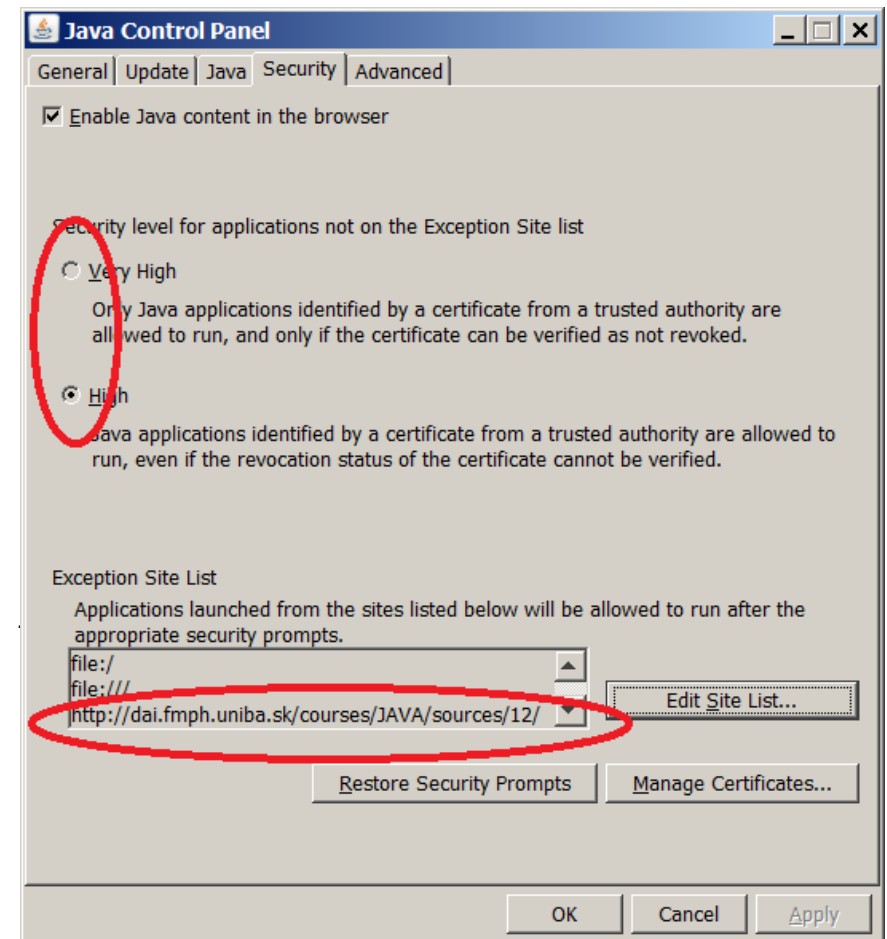
<http://dai.fmph.uniba.sk/courses/JAVA/sources/12/MiniEditorFrame.jnlp>



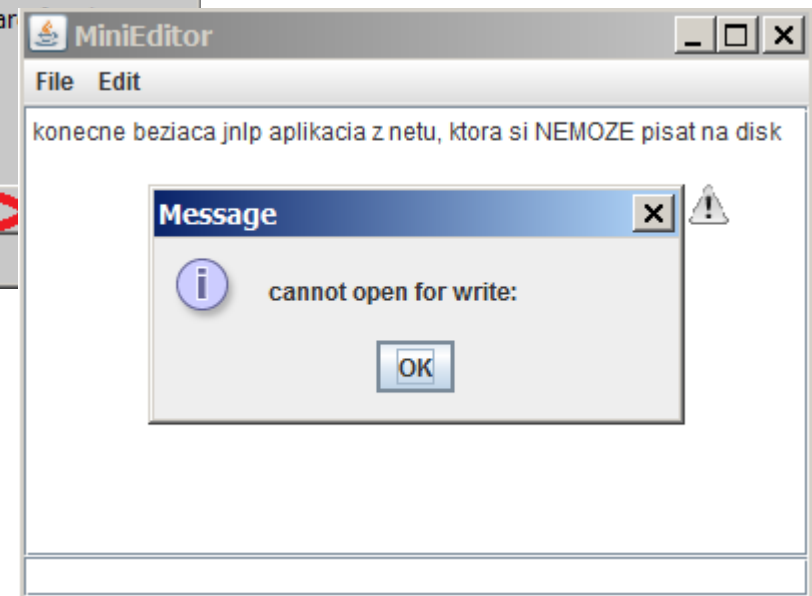
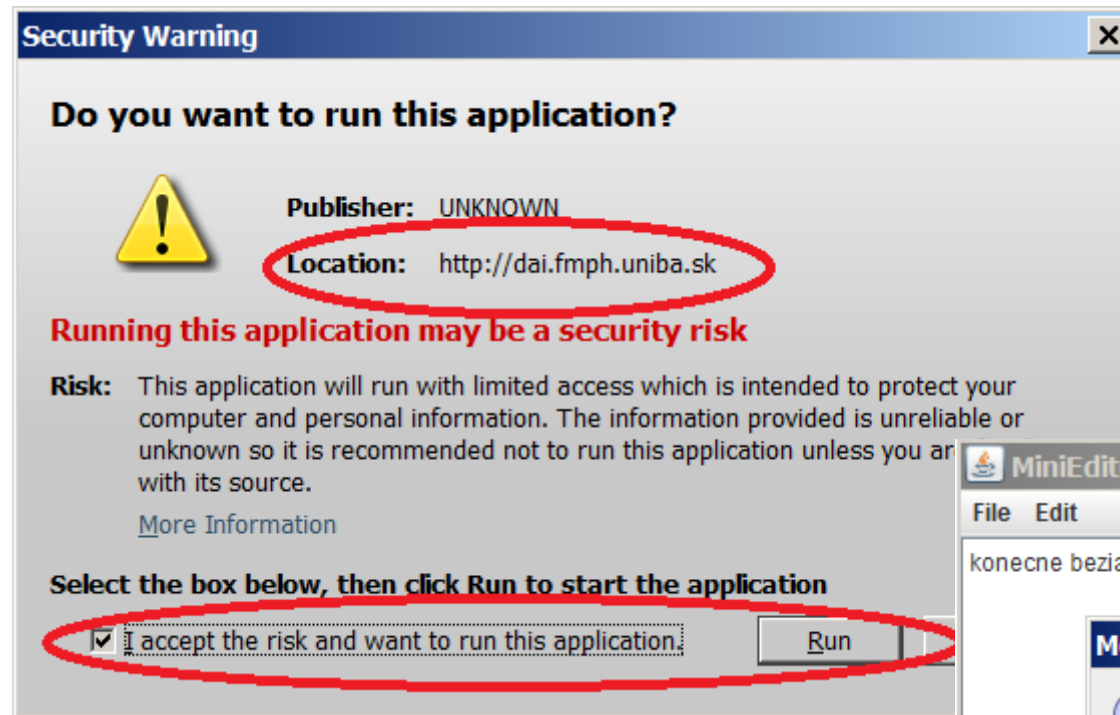
# Java Control Panel

jnlp popis aplikácie:

```
<?xml version="1.0" encoding="UTF-8"?>
<jnlp spec = "1.0"
  codebase="http://dai.fmph.uniba.sk/courses/JAVA/sources/"
  href="Arcanoid.jnlp">
  <information>
    <title>Arcanoid demo</title>
    <vendor>FMFI</vendor>
    <description>
      Jnlp Quadterm2 Application
    </description>
    <description kind="short">
      Quadterm2 Application
    </description>
    <offline-allowed/>
  </information>
  <resources>
    <j2se version="1.8"/>
    <!-- jar href="Arcanoid.jar" download="eager"/>
    <jar href="arcanoid2.jar" download="eager"/>
  </resources>
  <security> <all-permissions/> </security>
  <application-desc
    main-class="application.Arcanoid"/>
</jnlp>
```



# Overenie



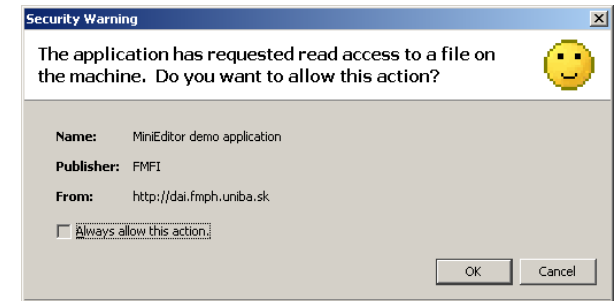
# JNLP



## jnlp.FileOpenService

- poskytuje viacero služieb: (viac <http://docs.oracle.com/javase/8/docs/technotes/guides/javaws/developersguide/examples.htm>)
  - **BasicService** getCodeBase(), isOffline(),
  - **FileContents** práca so súbormi, getInputStream(), getOutputStream(),
  - **FileOpenService** file open dialog, resp. multi-file open dialog
  - **FileSaveService** file save dialog,
  - **PrintService** tlačenie u klienta

```
import javax.jnlp.*;
public void loadFile() {
    FileOpenService fs = null;
    try {
        fs = (FileOpenService)ServiceManager.Lookup("javax.jnlp.FileOpenService");
    } catch(UnavailableServiceException use) {
        throw new RuntimeException(use); }
    if(fs != null)
        try {
            fileContents = fs.openFileDialog(".", new String[]{"txt", "*"});
            if(fileContents == null) return;
            filename.setText(fileContents.getName());
            ta.read(fileContents.getInputStream(), null);
        } catch (Exception exc) {
            throw new RuntimeException (exc);
        }
}
```

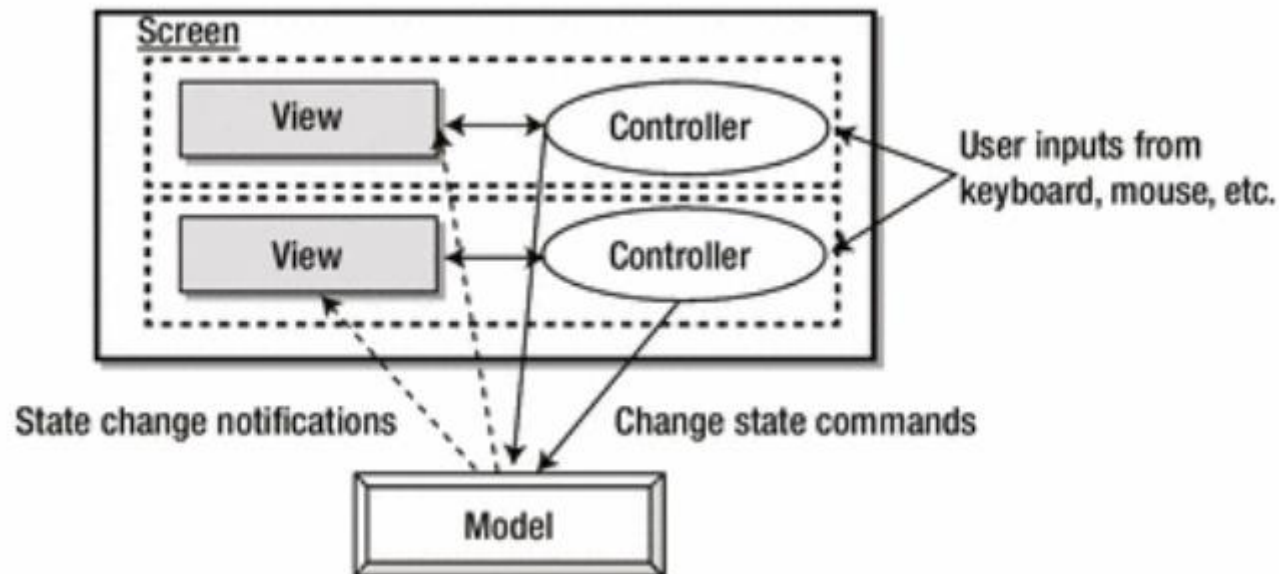


**Súbor: MiniEditorFrame.java**



# IDE Netbeans

- “ alzia mo0nos ako vytvori stand-alone/webstart/web aplikáciu
- “ podporuje tvorbu JavaFX aplikácií (New/JavaFX/JavaFX Application)
- “ aj FXML aplikácií (New/JavaFX/JavaFX FXML Application)
- “ podporuje Model-View-Controller (MVC) prostredníctvom FXML
  - . View: prezenta ná úrove , vizuálne komponenty, layout, ztýly
  - . Controller: logika, väzba medzi View a Modelom,
  - . Model: data, reprezentácia



# FXML

## scene editor/builder

```
<?xml version="1.0" encoding="UTF-8"?>
```

```
<?import java.lang.*?>
```

```
<?import java.util.*?>
```

```
<?import javafx.scene.*?>
```

```
<?import javafx.scene.control.*?>
```

```
<?import javafx.scene.layout.*?>
```

```
<AnchorPane id="AnchorPane" prefHeight="200" prefWidth="320,,  
  xmlns:fx="http://javafx.com/fxml/1"  
  fx:controller="javafxapplication4.FXMLDocumentController">  
  <children>  
    <Button layoutX="126" layoutY="90" text="Click Me!"  
      onAction="#handleButtonAction" fx:id="button" />  
    <Label layoutX="126" layoutY="120" minHeight="16" minWidth="69" fx:id="label"  
  />  
  </children>  
</AnchorPane>
```

