NetBeans Platform

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Intro: What I Cover in this Section

- What the Window System API does
- Why it's important
- What the most important classes are
- How to create new Windows
- What some of the configurations files do

What is a Window System?

- A system for managing windows
- Windows inside a window
  - Resize, hide, maximize, minimize, undock
- Managed by the WindowManager
  - Provided by NB Platform
  - Though you could actually plug in your own

Window System Demo

- I will show various aspects of Win Sys
  - ◇ Resizing
  - ◇ Moving
  - ◇ Sliding / Restoring
  - ◇ Closing / Reopening
  - ◇ Docking / Undocking
  - ◇ Maximizing

Matisse

- NetBeans has a great GUI builder
  - Often called by its code name "Matisse"
- This is typically used for UI design
- Let me give you a quick demo…

Why Is A Window System Useful?

- Ability to manage windows is helpful
    - Different screen resolutions
    - Parts of app more important than others
        - But which ones are varies per user!
    - Can help user focus on a specific task
    - Undocking handy for multiple monitors

What Are the Other Benefits?

- Layout is retained automatically
  - Size, position, open/close state
  - Users like this
  - Tedious to write this on your own
  - You get this "for free" with NB platform
- Can define initial layout for your app
- Can restrict certain operations
  - Now on a window-by-window basis

What Are the Alternatives?

- Other window mgt. Frameworks in Java
    - FlexDock
    - VLDocking
    - JIDE
    - MyDoggy
    - JDocking
    - Eclipse RCP

Window System Terms

- Window Manager
    - Manages the window system
    - Rare for apps to write code which uses this
- TopComponent
    - An individual window
    - Basically a special JPanel
    - Has a Lookup and set of activated nodes
    - Every TopComponent has an ID

Window System Terms (2)

- TopComponentGroup
  - ◇ Open/close multiple windows at once
  - ◇ NB Debugger is a good example of this
- Docking
  - ◇ Placing a TC in some position
- Mode
  - ◇ A location where a TC is docked

Modes

- Modes have names
  - These correspond to IDE features
- Examples
  - explorer
  - output
  - navigator
  - editor

Demo: Creating a New TopComponent

- I will demonstrate the TC wizard

Configuration Files

- Window System has lots of config files
    - Not easy to create on your own
    - But relatively easy to modify (XML)
    - Get WindowSystem to do the work for you
- File extensions
    - wstcref: window system TopComponent reference
    - settings: similar to an instance file
    - wswmgr: window system window manager
    - wstcgrp: window system TopComponent group

TopComponent LifeCycle Methods

□ You can override these TC methods

◇ requestVisible()

◇ requestActive()

◇ componentHidden()

◇ componentShowing()

◇ componentDeactivated()

◇ componentActivated()

◇ componentClosed()

◇ componentOpened()

Persistence

- On shutdown, last state of each TC is persisted to the System Filesystem
    - Depending on its persistence type
    - java.io.Externalizable is used
    - Serialize a "stub" object that can recreate the component
    - Skeleton code generated by wizard
    - You can modify the default persistence code
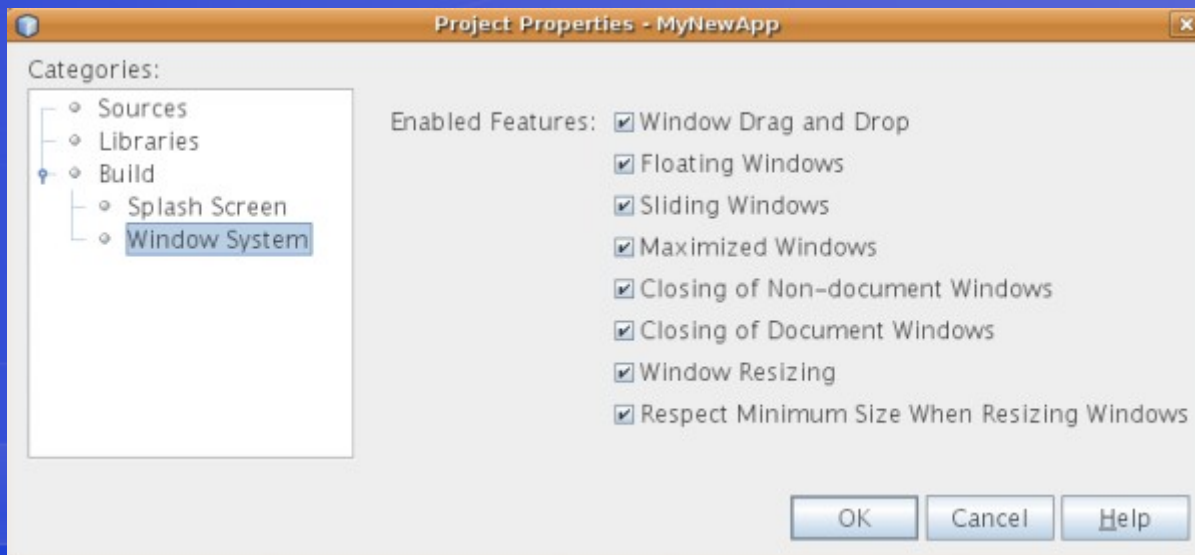
Persistence Modes

- PERSISTENCE_ALWAYS
- PERSISTENCE_NEVER
- PERSISTENCE_ONLY_OPENED

Limiting Window System Behavior

▫ You can restrict certain operations

  ◇ This can now be done per TopComponent!

  ◇ See Window System API docs for details

TopComponent Registry

- □ Provides access to existing Tcs
- □ Example for listing all open TCs

```java
OutputWriter writer;
InputOutput io = IOProvider.getDefault().getIO("Opened", false);
writer = io.getOut();
io.select();

Set<TopComponent> tcs =
        WindowManager.getDefault().getRegistry().getOpened();
for (TopComponent topComponent : tcs) {
    writer.println(topComponent.getName() + "\n");
}
```

Review Questions

- What are some benefits of Win Sys API?
- What is a TopComponent?
- What is meant by docking?
- Name three modes

Recap

- What the Window System API does
- Why it's important
- What the most important classes are
- How to create new windows
- What some of the configurations files do

Exercise (30 minutes)

□ Create a new TopComponent
  ◇ And build a quick "address book" GUI
  ◇ Allow for the following:
    ◇ First name, last name
    ◇ Home, work and cell phone #s
    ◇ Home and work e-mail addresses
    ◇ Radio button for gender
    ◇ Checkbox for whether they have pets
    ◇ Area for notes
  ◇ Does not need to be functional – just a UI