Agenda

- What is REDHAWK?
  - Overview of Software Defined Radio (SDR)
  - Core-framework
- REDHAWK IDE
  - Form Editors
  - Diagram Editors
  - SCA Explorer
  - Sandbox
  - Control Panels
- Demo
- Questions
A software-defined radio system, or SDR, is a radio communication system where components that have been typically implemented in hardware (e.g. mixers, filters, amplifiers, modulators/demodulators, detectors, etc.) are instead implemented by means of software on a personal computer or embedded system. (Wikipedia - http://en.wikipedia.org/wiki/Software-defined_radio)

Examples of SDR Implementations:
- GNURadio
- JPEO JTRS SCA
- Other proprietary frameworks

The goal of the REDHAWK program is to create a standards-based development framework for Software-Defined Radio (SDR).
What is REDHAWK?

Tools

Developer

Code

Generate

Debug

Framework

Deploy

Control

User

Clip art from: http://openclipart.org
REDHAWK Core Framework extends the US DOD Joint Tactical Radio System (JTRS) Software Communications Architecture (SCA) 2.2.2
REDHAWK IDE
Form Editors

Overview
2 warnings detected

General Information
This section describes general information about this component.

<table>
<thead>
<tr>
<th>Type</th>
<th>sca_compliant</th>
</tr>
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<tbody>
<tr>
<td>ID*</td>
<td>DCE:a48bc9e3-f0da-476e-b8bb-29472df81a77</td>
</tr>
<tr>
<td>Name*</td>
<td>javaComponent</td>
</tr>
<tr>
<td>Version</td>
<td></td>
</tr>
<tr>
<td>Title</td>
<td></td>
</tr>
<tr>
<td>PRF</td>
<td>javaComponent.prf.xml</td>
</tr>
<tr>
<td>SCD</td>
<td>javaComponent.scd.xml</td>
</tr>
<tr>
<td>Description</td>
<td></td>
</tr>
</tbody>
</table>

Ports
This section configures the ports of the component.

<table>
<thead>
<tr>
<th>Name</th>
<th>RepID</th>
</tr>
</thead>
</table>

Interfaces

Component Content
The content of the component is made up of two sections
- **Properties**: declares properties of the component.
- **Implementations**: declares implementations of the component.

Testing
Test the component by:
- Launch a local component
- Launch a local component in debug mode

Exporting
To package and export the component:

Export the component in a format suitable for deployment using the Export Wizard
Diagram Editors
SCA Explorer

- Device Managers
- File Manager
  - Waveforms
- Sandbox
  - Chalkboard
  - Device Manager
  - File Manager
- Target SDR
  - IDL Repository
    - Components
  - Devices
  - Nodes
  - Services
  - Waveforms
Sandbox
Control Panels
DEMO
Eclipse as a Software Defined Radio Development Environment
REDHAWK IS FOSS!

Yes, it's FOSS!

http://redhawksdr.org/

http://github.com/RedhawkSDR

REDHAWK IDE:
● Licensed Under Eclipse Public License (EPL)

REDHAWK Core Framework:
● Licensed Under LGPL
Eclipse Projects Used By REDHAWK

Eclipse - http://eclipse.org/
CDT - http://www.eclipse.org/cdt/
EGit - http://www.eclipse.org/egit/
Hudson - http://www.eclipse.org/hudson/
JDT - http://www.eclipse.org/jdt/
EMF - http://www.eclipse.org/modeling/emf/
Jetty - http://www.eclipse.org/jetty/
JET - http://www.eclipse.org/modeling/m2t/
PyDev - http://pydev.org/
Subversive - http://www.eclipse.org/subversive/
RAP - http://eclipse.org/rap/

Questions

Eclipse as a Software Defined Radio Development Environment

http://www.redhawksdr.org

Don't forget to give your feedback:
References

http://www.axiosengineering.com/
http://redhawksdr.org/
http://github.com/RedhawkSDR
http://jpeojtrs.mil/sca/Pages/default.aspx
http://nextmidas.techma.com/
http://ossie.wireless.vt.edu/
http://openclipart.org
http://en.wikipedia.org/wiki/Software-defined_radio
sudo add-apt-repository ppa:axios/redhawk
sudo apt-get update
sudo apt-get install redhawk
   redhawk-sdrroot-dom-mgr
   redhawk-sdrroot-dev-mgr
   redhawk-sdrroot-dom-profile
   redhawk-bulkiointerfaces
   redhawk-device-gpp

# Source the environment ; only necessary if you
# don't log-out and create a new shell
. /etc/profile.d/redhawk.sh
. /etc/profile.d/redhawk-sdrroot.sh

nodeBooter -D
nodeBooter -d /nodes/DevMgr_laptop/DeviceManager.dcd.xml

https://github.com/Axios-Engineering/framework-core/blob/ubuntu/UBUNTU.md