



Communications  
Research Centre  
Canada

An Agency of  
Industry Canada

Centre de recherches  
sur les communications  
Canada

Un organisme  
d'Industrie Canada

CAN'T FIND AN

**SDR**

**SOLUTION**

THAT FITS YOUR NEEDS?

Canada





**IMAGINE A SINGLE RADIO DEVICE THAT  
COULD BE CONFIGURED TO WORK WITH  
ANY COMMUNICATIONS SYSTEM, BE IT  
COMMERCIAL, RESCUE-RELIEF, LAW  
ENFORCEMENT OR MILITARY. A SINGLE  
RADIO FOR MULTIPLE COMMUNICATIONS  
SERVICES, STANDARDS AND PROTOCOLS.**



**C**ommunications Research Centre Canada (CRC) is developing this unique radio technology. It's called Software Defined Radio (SDR) and it works a lot like a desktop computer. Just as your home and office computer is able to carry out many functions based on the software loaded onto it, SDR will allow a single radio to adapt to different communications environments and systems by selecting the software that best suits the situation.

## SOFTWARE COMMUNICATIONS ARCHITECTURE CORE FRAMEWORK



Central to the Software Defined Radio (SDR) technology is the Software Communications Architecture (SCA) Core Framework that allows deployment and configuration of the radio software. SCA is becoming the international standard for military radio and public safety. Communications Research Centre (CRC) is a world-renowned expert in the SCA and is currently developing different SCA implementations to respond to various segments of the SDR market.

CRC's three main SCA implementations are:

**SCARI:** A basic, open-source implementation of the SCA core framework, SCARI was produced under the sponsorship of the SDR Forum and is available for free download from the CRC Web site at [www.crc.ca/scari](http://www.crc.ca/scari).

**SCARI-Hybrid:** This is a full-featured implementation of the SCA core framework with radio management implemented in Java and a C++ framework for the development of logical devices and waveform application resources. This framework provides a node booter that supports every feature of the domain profile and a number of additional features, such as pre-connection logging of messages. These features will simplify the development and operation of an SDR-enabled radio. Current implementation is for Linux OS/TAO ORB. Other combinations are under development.

**SCARI++:** This is a full-featured C++ implementation of the SCA core framework. With this, the radio management components are developed in C++ and can easily be embedded. In addition to the SCARI-Hybrid feature set, SCARI++ offers advanced features like the possibility for a waveform application to generically provide a specialized user interface for its control.

## DEVELOPMENT TOOLS

Recognizing the complexity of this new technology, CRC is offering a number of software tools to simplify the SDR development cycle.

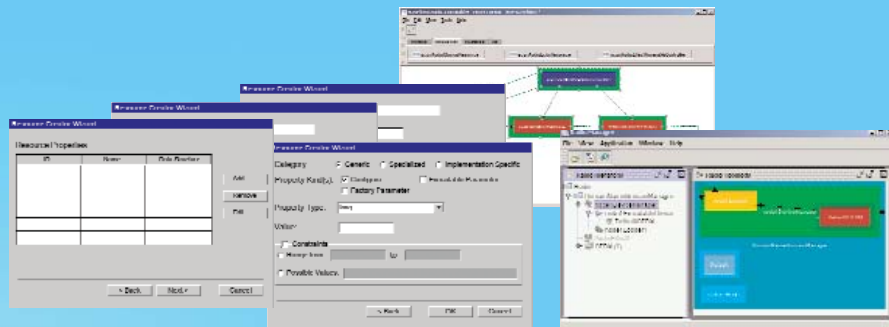
**Code Generator:** Once the signal processing algorithm is written, the code generator tool will help the computer engineer "wrap" its code into an SCA compatible resource, providing the necessary code function calls and the XML descriptor files with basic information.

**Component Editor:** This tool is a companion to the Code Generator and enables the visualization and modification of the component descriptor files for more advanced features.

**Waveform Application Builder (WAB):** With the WAB, the application engineer can graphically assemble and link the different signal processing modules creating a communication waveform. The WAB outputs the Software Assembly Descriptor file used by the SCA to deploy the waveform.

**Assembly Optimizer:** An additional module to WAB, the Assembly Optimizer tool can be used to optimize the deployment for faster deployment or a smaller software footprint.

**Radio Manager:** This tool is the console of an SCA radio used by an operator to install and uninstall waveform applications and to control them through their configuration properties. It can also be used to perform introspection of an SCA radio and display a graphical representation of nodes and waveform resources.



## INDUSTRIAL SUPPORT

CRC also provides support services to industry, government labs or universities for the development of SDR Technologies. Services include:

**On-site courses:** Upon request, CRC can offer special training to SDR development teams in the area of SCA.

**Technology transfer:** CRC can provide consulting services by assisting in the software development of SCA radios.

**CRC HAS A SOLUTION FOR YOU.  
TALK TO US.**

**For More Information**

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