



Joint Program Executive Office Joint Tactical Radio System

SCA Profiles



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JTRS SCA Working Group

JPEO JTRS



Task Overview

- **Objective**

- To have a flexible architecture that can accommodate various platforms requirements (mobile versus static, single channel versus multiple channels, single waveform versus multiple waveforms, small form factor, etc.) instead of one size fits all architecture

- **Benefits**

- The elimination of interfaces that are not needed by a component or platform results in:
 - Assurance – eliminating these interfaces increase assurance by removing operations that are not intended to be utilized when deployed
 - Footprint Size – reduces footprint size
 - Performance – increases performance
 - Development Time – reduces requirements, which leads to reduction in implementation, testing, and integration

- **Impact**

- SCA Test Software on components optional behavior



Solutions

- **Units of Functionality**
- **Operating Environment Units Of Functionality**
- **Component Base Units of Functionality**
- **Application Components Unit of Functionality**
- **Device Components Units of Functionality**
- **SCA Profiles**



Units of Functionality

- **A Unit of Functionality (UOF) is a set of related SCA requirements.**
- **Classification of UOFs:**
 - Operating Environment – UOFs pertaining to an Operating Environment (OE) capability
 - Component Base – UOFs pertaining to a Component capability
 - Application Components – UOFs pertaining to an Application Component capability
 - Device Components – UOFs pertaining to a Device Component capability



OE Units of Functionality

- **AEP – provides the Application Environment Profiles capability**
- **Application Installable – provides the dynamic installation and un-installation of applications capability to the SCA OE**
- **CORBA Capable – supports the CORBA profiles**
- **Deployment – provides the deployment of installed applications and management of instantiated applications capability within the SCA OE**
- **Event Channel – provides the concepts of event channels and event service capability in the SCA OE**
- **Log Capable – provides the log service capability within the SCA OE**
- **Channel Extensions – provides the concepts of platform channels and deployment of applications onto platform channels capability within the SCA OE**



OE Units of Functionality, cont'd

- **Registration** - provides the registry interfaces for registering components to domain and device manager components capability to the SCA OE
- **Releasable** – provides the device manager releasing capability to the SCA OE
- **Un-Registration** - provides the registry interfaces for unregistering components to domain and device manager components capability to the SCA OE



Component Base Units of Functionality

- **For any type of SCA component such as application, CF Application, Application Factory, Device, Device Manager, Domain Manager, and Service components**
- **UOFs**
 - AEP – a component that adheres to the SCA AEPs
 - Connectable – provides port connection management capability that relates to the PortAccessor interface
 - Controllable – provides control capability that relates to the ControllableComponent interface
 - Configurable – provides configure and/or query capability that relates to the PropertySet interface, and configure and/or query properties
 - CORBA Capable – provides CORBA communication capability that adheres to the SCA CORBA profiles
 - Event Consumer – provides the capability of consuming events using the Event Consumer interface



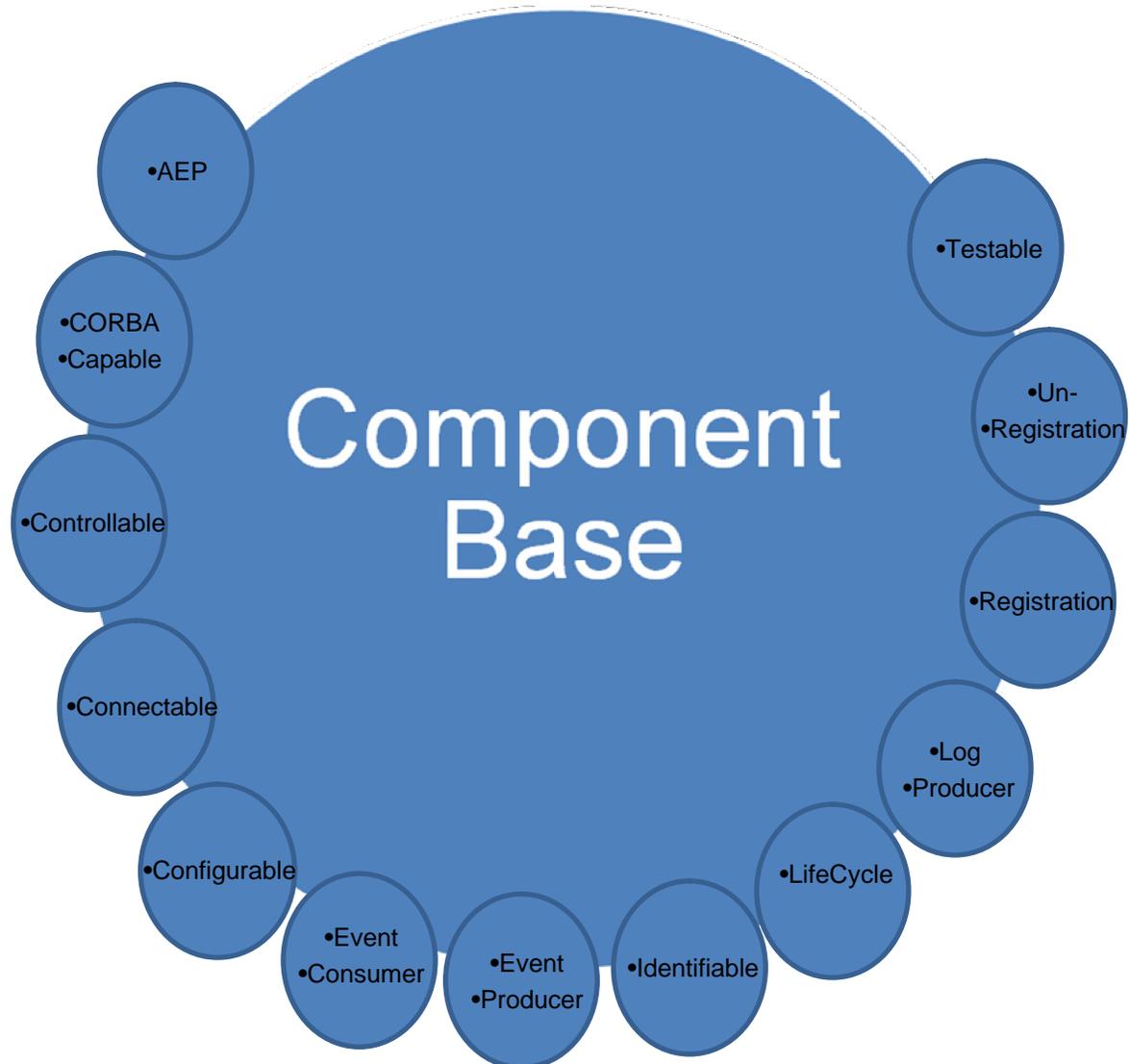
Component Base Units of Functionality, cont'd

- **UOFs**

- Event Producer - provides the capability of producing events using the Event Producer interface
- Identifiable – provides identifiable capability that relates to the ComponentIdentifier interface
- LifeCycle – provides life cycle management capability that relates to the LifeCycle interface
- Log Producer – a component that produces logs using the LogProducer interface
- Registration – provides the registration capability that relates to the ComponentRegistry interface
- Testable – provides testing capability that relates to the TestableObject interface and test properties
- Un-Registration – provides the un-registration capability that relates to the FullComponentRegistry interface



Component Base Units of Functionality Illustration



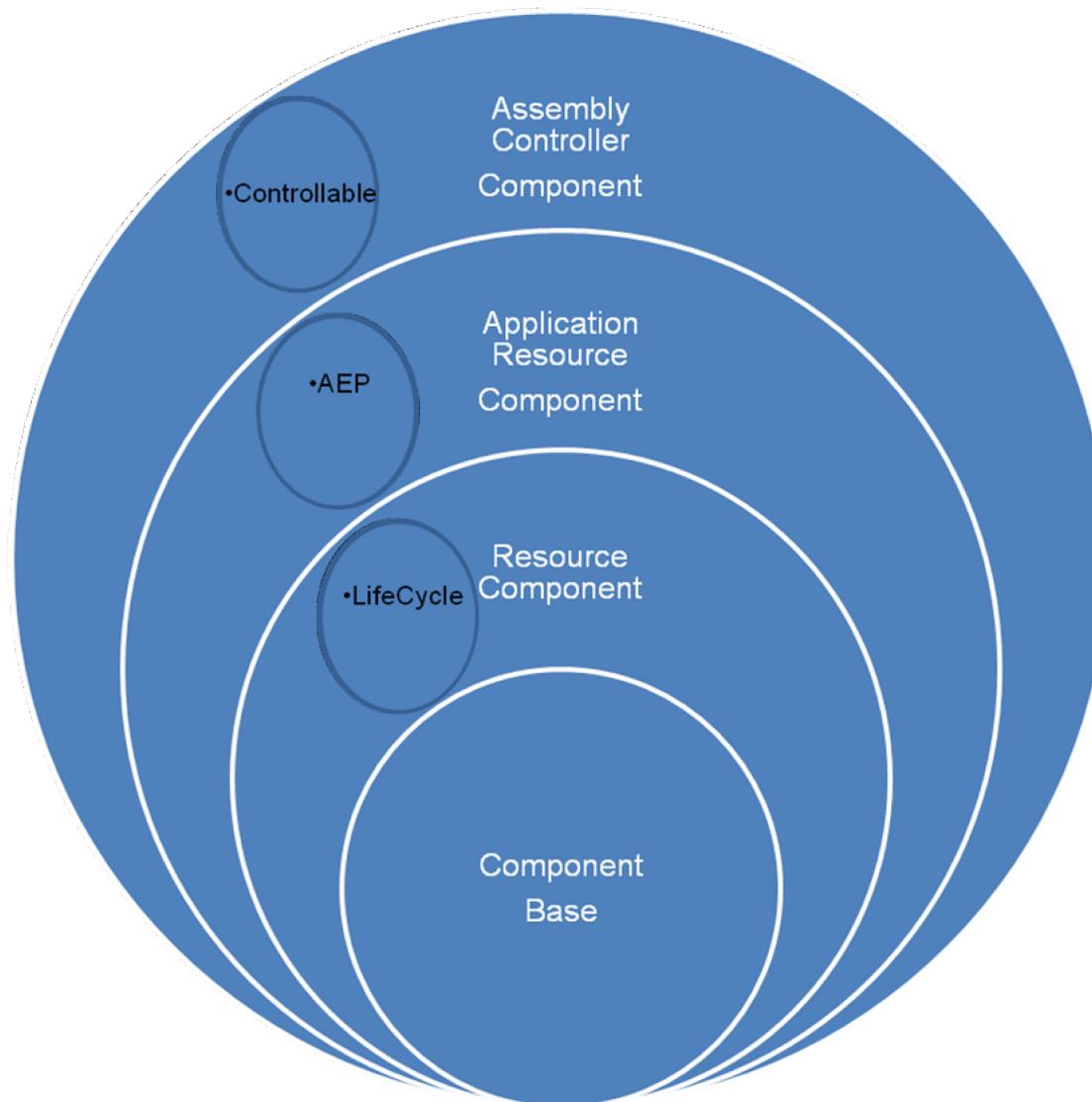


Application Components Units of Functionality

- **Application Components are based upon the Component Base optional UOFs**
- **Resource Component supports the mandatory LifeCycle UOF**
- **Application Resource Component extends the Resource Component with mandatory AEP UOF**
- **Assembly Controller Component extends the Application Resource Component with mandatory Controllable UOF**



Application Components Units of Functionality Illustration





Device Components Units of Functionality

- **All Device components have additional UOFs beyond the ComponentBase**
- **Loadable Device and Executable Device Components have mandatory UOFs, where all the other UOFs are optional for a Device component**
- **Component Device Base is based upon Component Base UOFs**
- **Loadable Device Definition extends Component Device Base with a mandatory Loadable UOF**
- **Executable Device Component extends the Loadable Device Component with mandatory Executable UOF**



Device Components

Units of Functionality, cont'd

- **UOFs**

- Allocatable – provides capacity management that relates to CapacityManager interface and allocation properties that are managed along with usage state
- Aggregatable – provides aggregation capability that relates to the AggregateDevice interface; a parent composite device with children devices
- Executable – provides the execute management capability that relates to the ExecutableDevice interface
- Interrogatable – provides interrogation capability that relates to the DeviceAttributes interface
- Loadable – provides the load management capability that relates to the LoadableObject LoadableDevice interfaces



Device Components

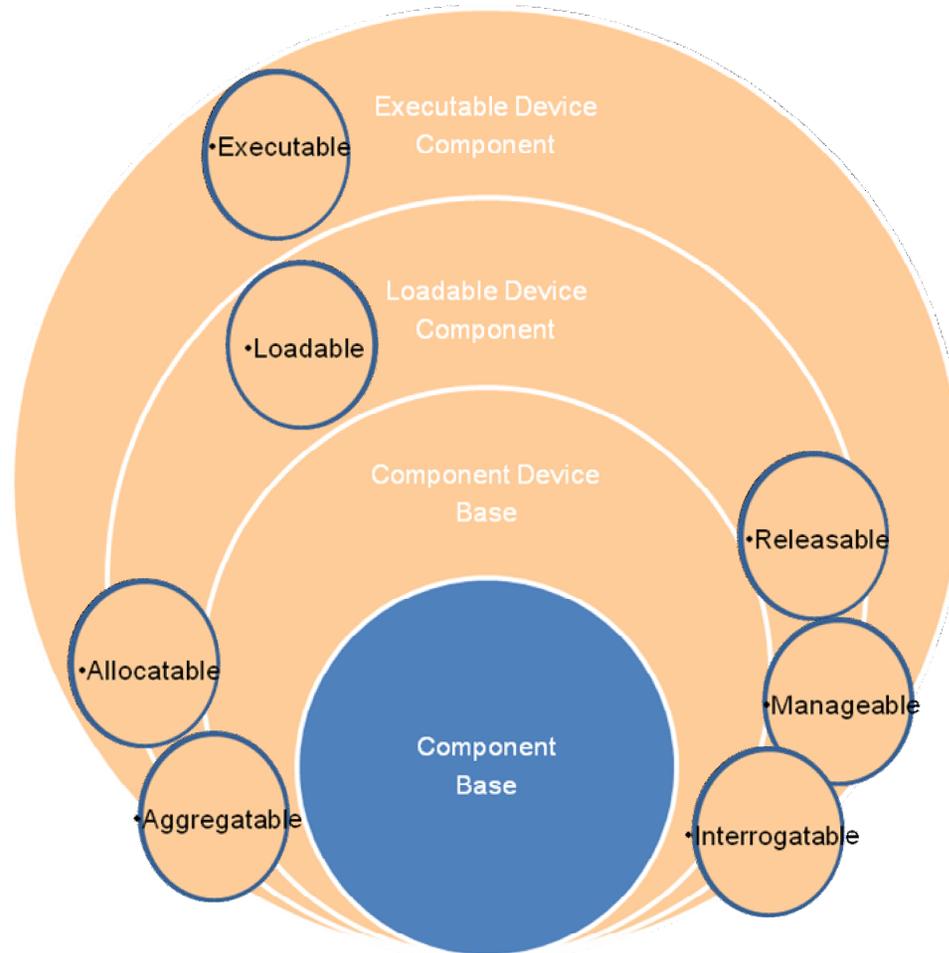
Units of Functionality, cont'd

- **UOFs**
 - Manageable – provides administration capability that relates to the ManageableComponent interface and administrative state behavior
 - Releasable – provides release capability that relates to the Lifecycle::releaseObject behavior; a device that is releasable



Device Components

Units of Functionality Illustration





SCA Profiles

- **A Profile is a set of UOFs.**
- **Three SCA Profiles:**
 - The Lightweight profile provides a minimum set of functionality.
 - Lightweight profile does not support registry interfaces for Domain and Device manager components, and Device Manger component is not releasable.
 - The Lightweight AEP supports the UOFs of AEP and Deployment.
 - The Medium profile provides the Lightweight profile and adds additional functionality.
 - Medium SCA Profile is not a full plug-and-play profile, only supports the registry interfaces for registering components to Domain and Device Manager components, where the Device Manager components are not releasable.
 - The Medium SCA Profile supports the additional UOF of Registration beyond Lightweight SCA Profile.
 - This profile is suited for radio platforms where the hardware modules are not plug-and-play but rather a static configuration.



SCA Profiles, cont'd

- **Three SCA Profiles:**

- The Full Profile incorporates the Medium profile and completes a full profile definition for SCA OE components.
 - Full SCA Profile is a plug-and-play profile that supports the registry interfaces for registering and unregistering components to Domain and Device Manager components.
 - This profile is suited for radio platforms where the hardware modules are plug-and-play and supports dynamic configuration.
 - The Full SCA Profile supports the additional UOFs of Un-Registration and Releasable beyond Medium SCA Profile.



SCA Profiles Illustration

