

# Interface Identification, Documentation, and V&V

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Intech AS

# About Me

- 14 years Raytheon Intelligence and Information Systems
  - Joint Polar Satellite System (<http://www.jpss.noaa.gov/>)
    - NASA/NOAA joint project
    - Requirements Verification Subject Matter Expert
    - Software Test Engineer
    - Deputy Test Director
  - Global Positioning System Next Generation Ground System ([http://www.raytheon.com/capabilities/products/gps\\_ocx/](http://www.raytheon.com/capabilities/products/gps_ocx/))
    - United States Air Force contract
    - Interface Requirement Specification Responsible Engineer

# Intech AS

- Professional services company
- Established 1987
- Employee owned
- 7 employees
- Systems engineering and process focussed
- Lasting customer relationships
- Major private and public customers
- International assignments

# Identifying Interfaces in a System

- System/Subsystem Use Cases
- System Model
  - Activity/Sequence Diagrams
  - System Composition Diagram
- Customer Requirements
  - ...shall distribute 99.99% of data products within 100 minutes...
- Domain Knowledge
  - Command and Telemetry – Space to Ground, Vehicle to Traffic Manager
  - Internal Status Messaging – Subsystem(s) to Infrastructure Subsystem

# Documenting Interfaces



- Interface Control Document (ICD)
- Interface ID
- Sender
- Receiver
- Frequency
- Data Content and Format



- Interface Requirement Spec (IRS)
- Interface ID
- Service Oriented Architecture
- XML Schema Definition
- Shall statements

# Interface Requirements

- ICD Interfaces

- Requirements in subsystem specifications
- 1 requirement for send, 1 for receive
  - Subsystem A shall send <data> in accordance with ICD.
  - Subsystem B shall receive <data> in accordance with ICD.
- Requirements are verified with the functional requirements

- IRS Interfaces

- Requirements in-line in document
- IRS requirements contain interface details
- Interface verification separate from functional requirements

# Interface Requirement Verification

- ICD Requirements
  - Verification of Interface details tied to 2 shall statements.
    - Data content and format, frequency, acknowledgement, etc.
    - All-or-nothing
- IRS Requirements
  - Verified requirement = verified interface detail

Questions?