



OOS Data Collection

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Data Collection Background

- **The objective is to provide the necessary data, when required, to support the needs of the use case being performed with the current system configuration.**
- **The issues are what to collect, who to collect it from, and when to collect it.**
- **This approach supports composability, flexibility, usability, and performance.**



Data Collection Process

- **Create Data Collection Specification (DCS) files using the Data Collection Specification Tool (DCST)**

The DCST

- **Specifies what to collect, who to collect it from, and when to collect it**
- **Uses the Analysis Data Model (ADM) to determine what data will be available**
- **Associate DCS files with a simulation scenario using the Management and Control Tool (MCT)**
- **Run the simulation to generate output files**



Analysis Data Model (ADM)

- **Contains a description of all the data that is offered for collection by OOS**
- **Comprehensive ADM (C-ADM)**
 - All the data that could be offered by OOS
 - Used when no system composition is specified in the DCS file
- **Instance ADM (I-ADM)**
 - Data offered by the components in a specific system composition
 - Generated when a system composition is saved.
 - If components are added to an existing system composition, the additional data descriptions will be added to the I-ADM when the composition is saved.
 - Stored as part of the system composition



Where Does the Data Come From (1)?

- **Data producers register for inclusion in the ADM**
 - Identifies data using unique names
 - Data collection category (such as Entity, Unit, ...)
 - Data collection sub-category (such as Weapon, Sensor, ...)
 - Logical name (such as range, speed, ...)
 - Allows selection in the DCST
- **Data producers register with the data collector**
 - Tells the data collector where to get the data
- **Example Data Producers:**
 - The Object Database (ODB) registers all data in the Runtime Data Model (RDM)
 - Models register additional internal data



Where Does the Data Come From (2)?

- **Types of collection**
 - **Persistent Data (Pulled)**
 - **The Data Collector stores instance identifiers for the Data Producers, along with method references for the registered data**
 - **Periodically, the Data Collector looks up the method references for the Data Producers and invokes the methods on the Data Producers to get the data**
 - **Event Data (Pushed)**
 - **The Data Producer sends event data to the Data Collector**



Using the Data Collection Specification Tool (1)

- **Create a new DCS file**
 - Use the File->New menu option
 - **System Composition**
 - **Optional.** Allows use of the I-ADM to filter the items available for selection
 - **Simulation Scenario**
 - **Optional.** Allows filtering of items available for selection
 - **Data Collection Category**
 - **Data Persistence (persistent or event)**

Using the Data Collection Specification Tool (2)

- **Specify who to collect the data from**
 - **Use the Edit->Add Data Producer menu item**
 - **Type** (such as M1A1, can be 'all')
 - **Data Producer ID** (the data producer's unique ID, can be 'all')
 - **Component** (such as Main gun, optional)
 - **Component of the data producer, not a OneSAF Component**
 - **Specify when to collect the data from this producer**
- **Specify what data to collect**
 - **Use the Edit->Add Data Element menu item**
 - **Data Collection Sub-category**
 - **Logical Name**
- **Save the file using the File->Save menu item**



Associate DCS Files with a Simulation Scenario

- **Load a scenario into the Management and Control Tool (MCT)**
- **Use the Tools->Data Collection menu item to specify DCS files and their corresponding output locations**
- **And/or use the Tools->Collect AAR Data menu item to use a predefined set of DCS files**



Output Data

- **Data is output to the /SOR/collectedPublishedData directory**
- **Filenames specified in the MCT are appended with a timestamp**
- **Data is in XML format**
- **Schema for each data file is stored in the same directory, with the same filename, and an extension of .xsd**
- **Roadmap of DCS and output filenames for the run is stored in /SOR/collectedData**
 - **Supports replications**
 - **Supports analysis from a checkpoint**