Unified Incident Command and Decision Support (UICDS)

Interface Design Description

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Interface Design Description Approvals

The signatures below constitute approval of this specification.

Contributors

_____   _____

Roger Wuerfel
UICDS Implementation Lead

Submitter

_____   _____

Roger Wuerfel
UICDS Implementation Lead

Approver(s)

_____   _____   _____   _____

Gerald Mahoney   Daphne Hurrell
UICDS Project Manager   UICDS Configuration
                                                        Management Lead

_____   _____

Mark Boriack
Quality Assurance

Revisions

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Revision Number	Date	Description
1.0	6/6/2008	Initial submittal for PDR
1.1	9/10/2008	Extensively revised to encompass design work accomplished since PDR
1.2	11/07/2008	PDR Corrections by Ron Ridgely
1.3	4/9/2009	SRR submission. Revised to reflect the current implementation.
1.4	12/22/2009	Prepared for pilot release. Updated service documentation and WSDLs to reflect current code. Added relevant XML schema files. Applied corrections cited in QA Audit report IDD R01C04.
1.5	09/03/2010	Prepared for UICDS version 1.0 release.
1.6	06/06/2011	Updated for UICDS version 1.1.
1.7	08/12/2011	Updated for UICDS version 1.1.1.
1.8	01/12/2012	Updated for UICDS version 1.2.
1.9	08/03/2012	Updated for UICDS version 1.2.1.

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1   Scope

1.1   Introduction

The Department of Homeland Security (DHS) Science & Technology (S&T) Directorate has launched the Unified Incident Command and Decision Support (UICDS) program to meet the United States' need to enable government entities across the country to work together to prevent, prepare for, plan for, respond to, and recover from emergency and catastrophic situations.

While a number of systems have been existence for decades to manage subsets of the required functions for first responder emergency operations, none to date have the innate ability to manage emergency operations at multiple levels in an integrated fashion. The UICDS solution is one that will support a multi-echelon, multi-platform, dynamically structured command structure and associated resources and processes that will enable information sharing and decision support for all individuals, teams, and organizations in order to respond to emergency situations.

Central to the UICDS solution are the doctrine set forth by the DHS:

•   The National Response Framework (NRF).

•   The National Incident Management System (NIMS), and

•   The Incident Command System (ICS)

Within these guidelines, SAIC developed the UICDS architecture during the UICDS Phase I contract. The UICDS Phase II effort expanded upon the UICDS Phase I architecture to produce the UICDS Architecture Specifications that describe the open, non-proprietary standards for UICDS-enabled information sharing, the UICDS middleware that is a reference implementation of the UICDS Architecture Specifications and a national outreach program to promote incorporation of the UICDS Architecture Specifications.

The UICDS Phase III, Technology Insertion and Pilot Expansion Program, extend UICDS, fielding and testing an operational UICDS prototype in a series of regional pilots: the Mid Atlantic region, the Pacific Northwest region, the State of Louisiana and the State of California. In addition, this program also deploys an operational UICDS prototype to FEMA to improve logistics supply chain management capabilities.

1.2   Document Overview

This Interface Design Description (IDD) defines the UICDS web service interfaces. This document should be considered in the context of the Architecture Description Document (ADD). To facilitate an understanding of the IDD, it is recommended that the ADD be read first.

1.3   Applicability

The version of the system upon which this document is based is UICDS Version 1.2.1.

1.4   Acronyms, Abbreviations, Notations, Naming Conventions

Acronym	Meaning
DHS	Department of Homeland Security
EDXL-DE	Emergency Data Exchange Language – Distribution Element
ICS	Incident Command System

Acronym	Meaning
IDD	Interface Design Description
IEPD	Information Exchange Package Documentation
MACS	Multi Agency Coordination System
NIEM	National Information Exchange Model
NIMS	National Incident Management System
NRF	National Response Framework
OGC	Open Geospatial Consortium
S&T	Science & Technology
SOI	Sensor Observation Information
SOS	Sensor Observation Specification
SOW	Statement of Work
SSDD	System Subsystem Design Description
TCL	Target Capabilities List
UICDS	Unified Incident Command and Decision Support
UTL	Universal Task List
WMS	Web Map Service
WSDL	Web Service Definition Language

2   Associated Documents

Reference Documents

- National Information Management System (NIMS), December, 2008
- National Response Framework (NRF), January 2008
- Universal Task List (UTL), February 2007
- Target Capabilities List (TCL), September 2007

Contract Documents

- DHS Contract HSHQDC-10-C-00030 dated 23 June 2010.

Phase III Documents

- UICDS Architecture Design Description (ADD)
- UICDS System/Subsystem Design Description (SSDD)

3 UICDS Services

UICDS services are grouped functionally into two Service Groups, Infrastructure and Domain, to help organize the design. Some of these services manage Work Products, which are structured XML documents containing data about aspects of an incident. The Work Products use various standard data formats, depending on their precise content; and are shared between UICDS cores and users.

Appendix A contains the WSDLs and XML schemas used in the UICDS services. Data in Work Products are captured in class diagrams for applicable services in the UICDS Services section and are also defined as XML schemas in the appendix. Appendix B documents the XML schema used in UICDS. Page numbers references appearing in the various tables in this appendix are relative within each individual schema in the appendix.

3.1 Infrastructure Services

The UICDS Infrastructure Services provide the APIs for managing the sharing of information among UICDS Cores. The list of services that belongs to the Infrastructure is:

- Agreement
- Directory
- Logging
- Interest Group
- Notification
- Search
- Resource Instance
- Resource Profile
- Work Product

3.2 Domain Services

The UICDS Domain Services provide APIs for managing Emergency Management specific constructs within UICDS such as incident summaries, command hierarchy, and mapping.

- Alert
- Broadcast
- Incident Action Plan
- Incident Command
- Incident Management
- LEITSC
- Map
- Resource Management
- Sensor
- Tasking

3.3 Services Schema

The service descriptions in this document contain links to schema. Some schemas are separated into component schemas for clarity and some schemas include schemas that are used in common. Links to these component schemas are found in the service descriptions and include:

- Core Config
- External Data Source Config
- External Tool Config
- ICS Form
- ICS Form Common
- ICS Form 201, 202, 203, 204, 205, 206, 207, 209, 210, 211
- Incident
- Incident Command Structure
- Incident Management Service Data
- Interest Group
- Organization Element
- Precis Base Types
- Precis Binary Payload
- Precis Link Payload
- Precis Structures
- Resource Management Data
- Service Config
- SOS Config
- UICDS Common
- Work Product Data

4   Interface Description

The following sections describe each service endpoint class in a standard javadoc format. It also includes graphical representations of the important schema elements when applicable.