



TM

Unified Incident Command Decision SupportTM (UICDS)TM

Quick Start Guide to the UICDS Sensor Service And Sensor Observation Information Work Product

Release 1 for UICDS Version 1.2

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1.0 About This Quick Start Guide

The purpose of this Quick Start Guide is to enable providers of sensor data to efficiently map their data to the UICDS Sensor Service in order to create, update, close, and archive sensor data shared through UICDS.

The Quick Start Guide is intended to be a stand-alone document; however, it goes hand-in-hand with the *UICDS Getting Started Guide* and other *UICDS Quick Start Guides* which provide details on other UICDS services and work products. All guides can be found on the UICDS Collaboration Portal at www.UICDS.us, Login – Technology Provider. So after exploring this guide, please refer to the Getting Started Guide for more technical information about UICDS.

In the sections that follow, the Quick Start Guide will provide:

- An overview of the Sensor Service including references to the Open Geospatial Consortium Sensor Observation Service that is the basis of the UICDS SOI Work Product
- A flowchart of an external application's interface with the UICDS Core
- A list of common names of data elements contained in many incident management applications and their corresponding UICDS data element names that can guide the mapping of an application to the work product
- The SOI Work Product Template that is the XML document that is used to post application data to UICDS
- Example of the XML document for posting (including the SOAP envelope)
- Example of how to associate the SOI Work Product with an incident
- Example of the response received after successfully posting the XML document
- A quick, proof-of-concept method for posting the XML document
- The UICDS SOI Work Product (containing Metadata, Digest, and Payload) created and stored within UICDS that results from the successful submission of the XML document by the application and which becomes the atomic unit of information sharing through UICDS.
- Three methods for retrieving or inspecting the UICDS SOI Work Product to validate it, including programmatically, using the UICDS Core using the UICDS Console, and an external look at the results of the work product using Google Earth™
- A description of the UCore Digest process including mapping of the Payload to the Digest
- Best Practices for that Pesky “Other” Data
- Link to the Sensor Service WSDL

2.0 Sensor Service Overview

The UICDS Sensor Service allows clients to create, update, close, and archive Open Geospatial Consortium Sensor Observation Specification (OGC-SOS) GetObservation and Observation work products. Observations or measurements made by these sensors are used to support incident related activities. The discovery process to identify sensors that are relevant to a particular UICDS incident involves interactions between UICDS clients and the sensor systems directly at several SOS levels. To reduce the need to repeat these steps, the information required to retrieve sensor observations, and optionally an observation itself, is stored as UICDS work products that are associated with the incident. Operationally, the Incident Work Product in UICDS is the beginning of the “UICDS Tree of Incident Knowledge.” Thus, the SOI Work Product, in most cases, will be “associated” with an Incident Work Product.

UICDS clients who are interested in retrieving the sensor observations request these work products either from the Sensor Service or the Work Product Service. The GetObservation element included in the work product can be used to request observations directly from the sensor system via the SOS interface in a more real-time manner.

The UICDS Sensor Service provides the ability for UICDS users to:

- create an Sensor Observation Information (SOI) work product
- delete an SOI work product
- update an SOI work product
- get an SOI work product with a specified work product ID
- get a list of SOI work products associated with a specified incident

The sosURN should be the URN of the SOS interface for the sensor. The SensorInfo contains descriptive data about the sensor or sensor suite. The location in this element should be in WGS84 decimal degrees and indicate where the sensor should be displayed on a map. The any element is used to contain the actual SOS GetObservation and Observation elements.

Note that each SOI work product may contain any number of SensorInfo elements and any number of GetObservation and Observation elements in the any element for one or more external sensors. Best practice for creating SOI work products is to include a SensorInfo and GetObservation element for each SOS offering by the SOS that is to be associated to the incident.

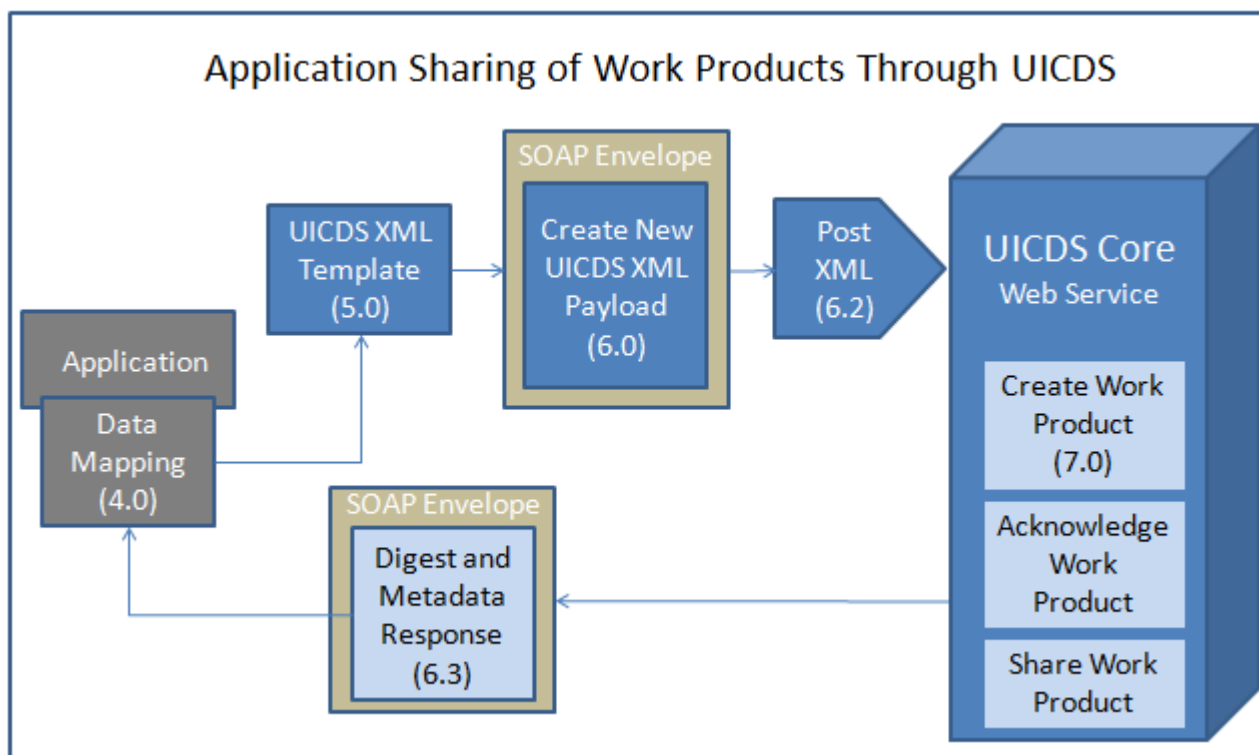
The SensorObservationInfo.SensorInfo.name and GetObservation.offering values should be used as the common value to match elements. If an Observation element is included for a sensor its gml.name element should match the SensorObservationInfo.SensorInfo.name and GetObservation.offering values.

The required and optional data elements for the Work Product associated with the Sensor Service are described below.

Work Product	Sensor Work Product Data
Standard	OGC Sensor Observation Service (SOS) 1.0.0 OGC Observations and Measurements 1.0

Reference	http://schemas.opengis.net/sos/ http://schemas.opengis.net/om/1.0.0/
Required Data	OGC Sensor Observation Service URL Name Description Location OGC Get Observation (Measurement Request from Sensor) Incident
Optional Data	OGC Observation and Measurement Result

3.0 Application Interactions with the UICDS SOI Work Product



External applications interact with the UICDS Core by creating UICDS Work Products, an XML document, and communicating with the core through SOAP calls.

External applications interact with and share data through UICDS by creating and updating UICDS Work Products. This exchange consists of several steps. First, an application maps its data to the UICDS XML data element structure (Section 4). The application then inserts this data into the UICDS XML Template data elements (Section 5) to form the Payload, an XML document that will become part of the Work Product. The application then wraps the payload in a SOAP envelope (Section 6) for transmission using Internet Protocols over local networks, private Internet, or public Internet. The application POSTs the SOAP message to the UICDS Core (Section 6.2) and UICDS creates a Work Product (7.0). UICDS acknowledges receipt of the Work Product through a transmission back to the application that includes the Digest and Metadata for the work product (Section 6.3).

Details of these steps follow.

4.0 Mapping to the UICDS SOI Work Product

The following table shows the common name of the data element as often used in Sensor applications in the first column. The second column is the Open Geospatial Consortium data element name contained in the UICDS SOI Work Product schema (shown below). The third column is blank in order to map your application to the UICDS SOI Work Product. Required UICDS data elements are shown in beige and optional in blue.

UICDS Common Data Element Name	UICDS Data Element	Map Your Data
OGC SOS Sensor URL	<sen:sosURN>	
Sensor ID	<sen:id>	
Name	<sen:name>	
Description	<sen:description>	
Location	<sen:latitude>38.92321</sen:latitude> <sen:longitude>-77.23262</sen:longitude>	
OGC Get Observation (Measurement Request from Sensor)	<element name="GetSOIListRequest">	
Incident	<sen:incidentID>	
OGC Observation and Measurement Result	<element name="SensorInfo">	

5.0 Payload Template for Required Data

The Payload Template will be the end product of your mapping of your data to the UICDS Work Product schema. The “INSERT HERE” notations are an indication of where data from an external application are inserted into the template. All of this will be done programmatically by the external application using example code described in Section 12.0.

```
<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:sen="http://uicds.org/SensorService">
  <soapenv:Header/>
```

```

<soapenv:Body>
  <sen:CreateSOIRequest>
    <sen:incidentID>IG-77557acc-1e27-4131-9fae-414c2038e795</sen:incidentID>
  <sen:SensorObservationInfo>
    <sen:sosURN>http://MySensorService.com/SOS</sen:sosURN>
    <sen:SensorInfo>
      <sen:id>SENSOR_01</sen:id>
      <sen:name>Sensor 1</sen:name>
      <sen:description>Test Sensor Number 1</sen:description>
      <sen:latitude>38.92321</sen:latitude>
      <sen:longitude>-77.23262</sen:longitude>
    </sen:SensorInfo>
  </sen:SensorObservationInfo>
</sen:CreateSOIRequest>
</soapenv:Body>
</soapenv:Envelope>

```

6.0 Create a New SOI Work Product

Creating a new SOI in UICDS entails mapping your data to the Payload Template (Section 5.0, above), wrapping the Payload (containing the application data) in a SOAP envelope (Section 6.1), and submitting the XML document to the Sensor Service (Section 6.2) by posting the document (Section 6.3).

6.1 *Wrapping the Payload in a SOAP Envelope*

The Payload Template becomes the UICDS SOI Payload when external application data is inserted into it. The payload is then wrapped in a SOAP envelope for submission to the UICDS Core. Below are the SOAP envelope instructions to connect to the Sensor Service.

```

<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:sen="http://uicds.org/SensorService">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>.....
  SOI List Payload XML Document
  .....>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

6.2 *Associating a Work Product with an Incident Work Product*

Most work products are most often used when associated with an incident. This is how the “UICDS Tree of Incident Knowledge” is developed – many applications submit their relevant data and UICDS manages that content by associating data with an incident.

The IG number is the unique value contained in an Incident Work Product that allows other work product to be associated with the incident.

The IG number, or AssociatedGroup/Identifier, is formatted like this: IG-e0051cbc-aea5-4a9f-977a-915a3a7db7a7.

The IG number is returned from UICDS in the following ways:

When an incident is submitted, the response contains the AssociatedGroup/Identifier as the IG number in a statement like this:

```
<base:AssociatedGroups xmlns:base="http://www.saic.com/precis/2009/06/base">  
  <base:Identifier>IG-3ad1df44-6b85-48af-a1ac-bef5b56f7cdd</base:Identifier>
```

To associate the Work Product with an incident, the IG number is placed in the Template (Section 5, above) in the incidentId, as shown below:

```
<ns1:incidentId>IG-e0051cbc-aea5-4a9f-977a-915a3a7db7a7</ns1:incidentId>
```

6.3 Location of the Sensor Service

The Sensor Service can be found at the following URL:

<https://localhost/uicds/core/ws/services/SensorService>

Where “localhost” is your UICDS Core.

For example, developers have access to hosted UICDS Cores for testing. With access credentials, you may post your test UICDS templates to:

<https://uicds-test2.saic.com/uicds/core/ws/services/SensorService>

6.4 Quick Test Posting of the UICDS XML Message

The example request below (Section 6.3) can be used to test out your connectivity with your local or hosted test UICDS Core (see Section 6.1 for URL) as well as to see the results of posting a work product. In Section 12 you will find links to *example code* to develop your own posting software code. Section 12 contains an outline of the example code, its functioning, and a summary of the use of the relevant example code for the Sensor Service.

There is a manual method of posting UICDS Work Products that you might want to use to see a proof of concept and test core connectivity.

This is not a recommended method of posting to UICDS that would substitute for writing code to transform your data into a UICDS Work Product.

To use this manual proof of concept method of posting, use a freely available commercial tool like Mozilla FireFox™ Poster™ available at <https://addons.mozilla.org/en-us/firefox/addon/poster/> to simply post the example request (obviously, feel free to modify the content) and receive a response.

Section 8.0, below, describes two methods of viewing data that you post to the UICDS Core using this manual, test method.

6.5 Create Request for SOI

Below is an example XML SOI Payload document, wrapped in SOAP, for posting to the Sensor Service on a UICDS Core. This document creates a SOI List with two SOIs.

```
<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:sen="http://uicds.org/SensorService">
  <soapenv:Header/>
  <soapenv:Body>
    <sen:CreateSOIRequest>
      <sen:incidentID>IG-77557acc-1e27-4131-9fae-414c2038e795</sen:incidentID>
    <sen:SensorObservationInfo>
      <sen:sosURN>http://MySensorService.com/SOS</sen:sosURN>
      <sen:SensorInfo>
        <sen:id>SENSOR_01</sen:id>
        <sen:name>Sensor 1</sen:name>
        <sen:description>Test Sensor Number 1</sen:description>
        <sen:latitude>38.92321</sen:latitude>
        <sen:longitude>-77.23262</sen:longitude>
      </sen:SensorInfo>
    </sen:SensorObservationInfo>
  </sen:CreateSOIRequest>
</soapenv:Body>
</soapenv:Envelope>
```

6.6 Expected Response for SOI

When a XML template is successfully posted to a UICDS Core, the core returns an XML document that provides validation that the work product was created. The document contains the UICDS SOI Work Product (a) Metadata shown in red and (b) Digest shown in green that will allow you to later update, close, and archive the work product.

```
<?xml version="1.0" encoding="UTF-8"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <sen:CreateSOIResponse xmlns:sen="http://uicds.org/SensorService">
      <wor:WorkProductPublicationResponse
xmlns:wor="http://uicds.org/WorkProductService">
        <str:WorkProductProcessingStatus
xmlns:str="http://www.saic.com/precis/2009/06/structures">
          <base:Status
xmlns:base="http://www.saic.com/precis/2009/06/base">Accepted</base:Status>
```

```

</str:WorkProductProcessingStatus>
<str:WorkProduct
xmlns:str="http://www.saic.com/precis/2009/06/structures">
  <ulex:PackageMetadata xmlns:ulex="ulex:message:structure:1.0">
    <ulex:DataItemID>SOI-d6193ca1-8597-4709-a1aa-b37551d1cfc5</ulex:DataItemID>
    <ulex:DataItemReferenceID>SOI-d6193ca1-8597-4709-
a1aa37551d1cfc5</ulex:DataItemReferenceID>
    <ns:DataItemStatus xmlns:ns="http://ucore.gov/ucore/2.0"
ns:code="Active"
ns:codespace="http://uicds.org/1.0/codespace/workproduct/status"
ns:label="UICDS Work Product Status"/>
    <ulex:DataOwnerMetadata>
      <ns:DataOwnerIdentifier xmlns:ns="http://ucore.gov/ucore/2.0">
        <ns1:Organization xmlns:ns1="http://metadata.dod.mil/mdr/ns/DDMS/2.0/">
          <ns1:name>ucids.org</ns1:name>
        </ns1:Organization>
      </ns:DataOwnerIdentifier>
      <ns:DataOwnerContact xmlns:ns="http://ucore.gov/ucore/2.0">
        <ns1:Organization
xmlns:ns1="http://metadata.dod.mil/mdr/ns/DDMS/2.0/">
          <ns1:name>http://uicds.us</ns1:name>
        </ns1:Organization>
      </ns:DataOwnerContact>
      <ulex:DataOwnerMetadataDomainAttribute>
        <ulex:DomainName>UICDS EM Domain</ulex:DomainName>
      </ulex:DataOwnerMetadataDomainAttribute>
    </ulex:DataOwnerMetadata>
    <ns:DisseminationCriteria xmlns:ns="http://ucore.gov/ucore/2.0"/>
    <str:WorkProductIdentification>
      <base:Identifier
xmlns:base="http://www.saic.com/precis/2009/06/base">SOI-d6193ca1-8597-4709-
a1aa-b37551d1cfc5</base:Identifier>
      <base:Version
xmlns:base="http://www.saic.com/precis/2009/06/base">1</base:Version>
      <base:Type
xmlns:base="http://www.saic.com/precis/2009/06/base">SOI</base:Type>
      <base:Checksum
xmlns:base="http://www.saic.com/precis/2009/06/base">Mon Oct 01 20:53:21 MDT
2012:1:0:3560809071</base:Checksum>
      <base:State
xmlns:base="http://www.saic.com/precis/2009/06/base">Active</base:State>
    </str:WorkProductIdentification>
    <str:WorkProductProperties>
      <base:Created
xmlns:base="http://www.saic.com/precis/2009/06/base">2012-10-01T20:53:21.399-
06:00</base:Created>
      <base:CreatedBy
xmlns:base="http://www.saic.com/precis/2009/06/base">admin@9zwgns1</base:CreatedBy>
      <base:LastUpdated
xmlns:base="http://www.saic.com/precis/2009/06/base">2012-10-01T20:53:21.399-06:00</base:LastUpdated>
      <base:LastUpdatedBy
xmlns:base="http://www.saic.com/precis/2009/06/base">admin@9zwgns1</base:LastUpdatedBy>
      <base:Kilobytes
xmlns:base="http://www.saic.com/precis/2009/06/base">0</base:Kilobytes>
      <base:MimeType
xmlns:base="http://www.saic.com/precis/2009/06/base">application/uicds
+xml</base:MimeType>

```

```

    <base:AssociatedGroups
xmlns:base="http://www.saic.com/precis/2009/06/base">
    <base:Identifier>IG-77557acc-1e27-4131-9fae-414c2038e795</base:Identifier>
    </base:AssociatedGroups>
</str:WorkProductProperties>
</ulex:PackageMetadata>
<ns:Digest xmlns:ns="http://ucore.gov/ucore/2.0"
xmlns:ucoregml="http://www.opengis.net/gml/3.2"
xmlns:ns1="http://niem.gov/niem/niem-core/2.0"
xmlns:tns="http://uicds.org/SensorService"
xmlns:have="urn:oasis:names:tc:emergency:EDXL:HAVE:1.0"
xmlns:ddms="http://metadata.dod.mil/mdr/ns/DDMS/2.0/"
xmlns:geo-oasis="urn:oasis:names:tc:emergency:EDXL:HAVE:1.0:geo-oasis"
xmlns:xnl="urn:oasis:names:tc:ciq:xnl:3"
xmlns:gml="http://www.opengis.net/gml">
    <ns:Event id="ObservationEvent-w1aa">
        <ns:Descriptor>SENSOR_01</ns:Descriptor>
        <ns:Identifier ns:code="" ns:codespace="" ns:label="Observation">Sensor1</ns:Identifier>
        <ns:What ns:code="ObservationEvent"
            ns:codespace="http://ucore.gov/ucore/2.0/codespace"/>
        </ns:Event>
        <ns:Location id="Location-w1aa">
            <ns:CyberAddress>
                <ddms:virtualCoverageddms:address="http://MySensorService.com/SOS" ddms:protocol="IP"/>
            </ns:CyberAddress>
            <ns:GeoLocation>
                <ns:Point>
                    <ucoregml:Point ucoregml:id="Point-w1aab3">
                        <ucoregml:pos srsDimension="2">38.92321 -
77.23262</ucoregml:pos>
                    </ucoregml:Point>
                </ns:Point>
            </ns:GeoLocation>
        </ns:Location>
        <ns:LocatedAt id="LocatedAt-w1aab3">
            <ns:EntityRef ref="ObservationEvent-w1aa"/>
            <ns:LocationRef ref="Location-w1aa"/>
        </ns:LocatedAt>
    </ns:Digest>
</str:WorkProduct>
</wor:WorkProductPublicationResponse>
</sen:CreateSOIResponse>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

7.0 The Resulting Work Product Example

A UICDS Work Product consists of (a) Metadata shown in red, (b) Digest shown in green, and (c) Payload shown in blue. The Metadata is returned when the SOI Work Product is created and was shown in the example above. The Digest also is created and returned when the SOI Work Product is created and was shown in the example above. The Payload is the data mapped from the external application to the template. The work product is the atomic unit of sharing in UICDS and contains all three parts.

An example of a SOI Work Product shown below:

```
<str:WorkProduct xmlns:str="http://www.saic.com/precis/2009/06/structures">
  <ulex:PackageMetadata xmlns:ulex="ulex:message:structure:1.0">
    <ulex:DataItemID>SOI-9e4073b4-afe9-4025-bfd3-a5d423859985</ulex:DataItemID>
    <ulex:DataItemReferenceID>SOI-9e4073b4-afe9-4025-bfd3-a5d423859985</ulex:DataItemReferenceID>
    <ns:DataItemStatus ns:label="UICDS Work Product Status"
ns:codespace="http://uicds.org/1.0/codespace/workproduct/status" ns:code="Active"
xmlns:ns="http://ucore.gov/ucore/2.0"/>
    <ulex:DataOwnerMetadata>
      <ns:DataOwnerIdentifier xmlns:ns="http://ucore.gov/ucore/2.0">
        <ns1:Organization xmlns:ns1="http://metadata.dod.mil/mdr/ns/DDMS/2.0"/>
          <ns1:name>uicds.org</ns1:name>
        </ns1:Organization>
      </ns:DataOwnerIdentifier>
      <ns:DataOwnerContact xmlns:ns="http://ucore.gov/ucore/2.0">
        <ns1:Organization xmlns:ns1="http://metadata.dod.mil/mdr/ns/DDMS/2.0"/>
          <ns1:name>http://uicds.us</ns1:name>
        </ns1:Organization>
      </ns:DataOwnerContact>
      <ulex:DataOwnerMetadataDomainAttribute>
        <ulex:DomainName>UICDS EM Domain</ulex:DomainName>
      </ulex:DataOwnerMetadataDomainAttribute>
    </ulex:DataOwnerMetadata>
    <ns:DisseminationCriteria xmlns:ns="http://ucore.gov/ucore/2.0"/>
    <str:WorkProductIdentification>
      <base:Identifier xmlns:base="http://www.saic.com/precis/2009/06/base">SOI-9e4073b4-afe9-4025-
bfd3-a5d423859985</base:Identifier>
      <base:Version xmlns:base="http://www.saic.com/precis/2009/06/base">1</base:Version>
      <base:Type xmlns:base="http://www.saic.com/precis/2009/06/base">SOI</base:Type>
      <base:Checksum xmlns:base="http://www.saic.com/precis/2009/06/base">Sat Oct 06 14:39:40 EDT
2012:1:0:3805482022</base:Checksum>
      <base:State xmlns:base="http://www.saic.com/precis/2009/06/base">Active</base:State>
    </str:WorkProductIdentification>
    <str:WorkProductProperties>
      <base:Created xmlns:base="http://www.saic.com/precis/2009/06/base">2012-10-06T14:39:40.468-
04:00</base:Created>
      <base:CreatedBy xmlns:base="http://www.saic.com/precis/2009/06/base">morentzj@uicds-
test2.saic.com</base:CreatedBy>
      <base:LastUpdated xmlns:base="http://www.saic.com/precis/2009/06/base">2012-10-
06T14:39:40.468-04:00</base:LastUpdated>
      <base:LastUpdatedBy xmlns:base="http://www.saic.com/precis/2009/06/base">morentzj@uicds-
test2.saic.com</base:LastUpdatedBy>
      <base:Kilobytes xmlns:base="http://www.saic.com/precis/2009/06/base">0</base:Kilobytes>
      <base:MimeType
xmlns:base="http://www.saic.com/precis/2009/06/base">application/uicds+xml</base:MimeType>
      <base:AssociatedGroups xmlns:base="http://www.saic.com/precis/2009/06/base">
        <base:Identifier>IG-60be918b-2405-4d78-ae4e-13691cd0d79e</base:Identifier>
      </base:AssociatedGroups>
    </str:WorkProductProperties>
  </ulex:PackageMetadata>
  <ns:Digest xmlns:ucoregml="http://www.opengis.net/gml/3.2"
xmlns:have="urn:oasis:names:tc:emergency:EDXL:HAVE:1.0" xmlns:xnl="urn:oasis:names:tc:ciq:xnl:3"
xmlns:ns1="http://niem.gov/niem/niem-core/2.0" xmlns:tns="http://uicds.org/SensorService"
xmlns:ddms="http://metadata.dod.mil/mdr/ns/DDMS/2.0/" xmlns:geo-
oasis="urn:oasis:names:tc:emergency:EDXL:HAVE:1.0:geo-oasis" xmlns:gml="http://www.opengis.net/gml"
xmlns:ns="http://ucore.gov/ucore/2.0" xmlns:base="http://www.saic.com/precis/2009/06/base"
xmlns:sen="http://uicds.org/SensorService" xmlns:ulex="ulex:message:structure:1.0">
```

```

<ns:Event id="ObservationEvent-w1aa">
  <ns:Descriptor>SENSOR_01</ns:Descriptor>
  <ns:Identifier ns:code="" ns:codespace="" ns:label="Observation">Sensor 1</ns:Identifier>
  <ns:What ns:code="ObservationEvent" ns:codespace="http://ucore.gov/ucore/2.0/codespace"/>
</ns:Event>
<ns:Location id="Location-w1aa">
  <ns:CyberAddress>
    <ddms:virtualCoverage ddms:protocol="IP" ddms:address="http://MySensorService.com/SOS"/>
  </ns:CyberAddress>
  <ns:GeoLocation>
    <ns:Point>
      <ucoregml:Point ucoregml:id="Point-w1aab3">
        <ucoregml:pos srsDimension="2">38.92321 -77.23262</ucoregml:pos>
      </ucoregml:Point>
    </ns:Point>
  </ns:GeoLocation>
</ns:Location>
<ns:LocatedAt id="LocatedAt-w1aab3">
  <ns:EntityRef ref="ObservationEvent-w1aa"/>
  <ns:LocationRef ref="Location-w1aa"/>
</ns:LocatedAt>
</ns:Digest>
<ulex:StructuredPayload xmlns:ulex="ulex:message:structure:1.0">
  <ulex:StructuredPayloadMetadata>
    <ulex:CommunityURI>SOI</ulex:CommunityURI>
    <ulex:CommunityVersion/>
  </ulex:StructuredPayloadMetadata>
  <sen:SensorObservationInfo xmlns="http://www.saic.com/precis/2009/06/structures"
xmlns:ns="http://ucore.gov/ucore/2.0" xmlns:ns1="http://metadata.dod.mil/mdr/ns/DDMS/2.0/"
xmlns:base="http://www.saic.com/precis/2009/06/base" xmlns:sen="http://uicds.org/SensorService">
    <sen:sosURN>http://MySensorService.com/SOS</sen:sosURN>
    <sen:SensorInfo>
      <sen:id>SENSOR_01</sen:id>
      <sen:name>Sensor 1</sen:name>
      <sen:description>Test Sensor Number 1</sen:description>
      <sen:latitude>38.92321</sen:latitude>
      <sen:longitude>-77.23262</sen:longitude>
    </sen:SensorInfo>
  </sen:SensorObservationInfo>
</ulex:StructuredPayload>
</str:WorkProduct>

```

8.0 WorkProductIdentification is Essential for Update, Close, and Archive

Any changes to a work product (Update, Close, Archive) must start from the most current version of the Work Product. The identification for the work product is found in ***WorkProductIdentification***.

The current version is defined by the following fields found in the WorkProductIdentification element:

- Identifier which provides a unique reference to the work product. In the example below, the Identifier is highlighted in yellow and includes “Incident” as the type of work product and the unique number that follows.
- Version which indicates the current working revision number of the work product.
- Type which indicates the “kind” of work product this is. Each service deals with a unique type. Arbitrary types can be managed directly via the Work Product Service. Checksum provides a unique check for versioned documents to enable multiple cores to update documents and stay in sync.

WorkProductIdentification is available from:

- Response to the CreateIncident
- Received in a Notification
- GetProductCurrentVersion Request

```
...
<preciss:WorkProductIdentification>
  <precisb:Identifier>SOI-16f3bd7c-a63a-48d6-9fa2-140c9d7ab687</precisb:Identifier>
  <precisb:Version>1</precisb:Version>
  <precisb:Type>SOI</precisb:Type>
  <precisb:Checksum>Mon Oct 01 14:35:39 MDT 2012:1:1:2704658747</precisb:Checksum>
  <precisb:State>Active</precisb:State>
</preciss:WorkProductIdentification>...
```

8.1 Get Work Product Current Version

The current version of a work product can be obtained via the Work Product Service by submitting a GetProductCurrentVersionRequest as shown below.

```
<?xml version="1.0" encoding="UTF-8"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <wp:GetProductCurrentVersionRequest
      xmlns:wp="http://uicds.org/WorkProductService"
      xmlns:preciss="http://www.saic.com/precis/2009/06/structures"
      xmlns:precisb="http://www.saic.com/precis/2009/06/base">
      <precisb:Identifier>SOI-9e4073b4-afe9-4025-bfd3-a5d423859985</precisb:Identifier>
    </wp:GetProductCurrentVersionRequest>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

8.2 Response to Get Work Product Current Version

This WorkProductIdentification obtained when you get the current version of the work product is used in the following three operations, Update, Close, and Archive.

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
```



```

<SOAP-ENV:Body>
  <wor:GetProductCurrentVersionResponse xmlns:wor="http://uicds.org/WorkProductService">
    <str:WorkProduct xmlns:str="http://www.saic.com/precis/2009/06/structures">
      <ulex:PackageMetadata xmlns:ulex="ulex:message:structure:1.0">
        <ulex:DataItemID>SOI-9e4073b4-afe9-4025-bfd3-
a5d423859985</ulex:DataItemID>
        <ulex:DataItemReferenceID>SOI-9e4073b4-afe9-4025-bfd3-
a5d423859985</ulex:DataItemReferenceID>
        <ns:DataItemStatus xmlns:ns="http://ucore.gov/ucore/2.0"
ns:code="Active" ns:codespace="http://uicds.org/1.0/codespace/workproduct/status" ns:label="UICDS Work
Product Status"/>
        <ulex:DataOwnerMetadata>
          <ns:DataOwnerIdentifier xmlns:ns="http://ucore.gov/ucore/2.0">
            <ns1:Organization
xmlns:ns1="http://metadata.dod.mil/mdr/ns/DDMS/2.0"/>
              <ns1:name>ucids.org</ns1:name>
            </ns1:Organization>
          </ns:DataOwnerIdentifier>
          <ns:DataOwnerContact xmlns:ns="http://ucore.gov/ucore/2.0">
            <ns1:Organization
xmlns:ns1="http://metadata.dod.mil/mdr/ns/DDMS/2.0"/>
              <ns1:name>http://uicds.us</ns1:name>
            </ns1:Organization>
          </ns:DataOwnerContact>
          <ulex:DataOwnerMetadataDomainAttribute>
            <ulex:DomainName>UICDS EM
Domain</ulex:DomainName>
          </ulex:DataOwnerMetadataDomainAttribute>
        </ulex:DataOwnerMetadata>
        <ns:DisseminationCriteria xmlns:ns="http://ucore.gov/ucore/2.0"/>
          <str:WorkProductIdentification>
            <base:Identifier
xmlns:base="http://www.saic.com/precis/2009/06/base">SOI-9e4073b4-afe9-4025-bfd3-
a5d423859985</base:Identifier>
            <base:Version
xmlns:base="http://www.saic.com/precis/2009/06/base">1</base:Version>
            <base:Type
xmlns:base="http://www.saic.com/precis/2009/06/base">SOI</base:Type>
            <base:Checksum
xmlns:base="http://www.saic.com/precis/2009/06/base">Sat Oct 06 14:39:40 EDT
2012:1:0:3805482022</base:Checksum>
            <base:State
xmlns:base="http://www.saic.com/precis/2009/06/base">Active</base:State>
          </str:WorkProductIdentification>
          <str:WorkProductProperties>
            <base:Created
xmlns:base="http://www.saic.com/precis/2009/06/base">2012-10-06T14:39:40.468-04:00</base:Created>
            <base:CreatedBy
xmlns:base="http://www.saic.com/precis/2009/06/base">morentzj@uicds-test2.saic.com</base:CreatedBy>
            <base:LastUpdated
xmlns:base="http://www.saic.com/precis/2009/06/base">2012-10-06T14:39:40.468-04:00</base:LastUpdated>
            <base:LastUpdatedBy
xmlns:base="http://www.saic.com/precis/2009/06/base">morentzj@uicds-test2.saic.com</base:LastUpdatedBy>
            <base:Kilobytes
xmlns:base="http://www.saic.com/precis/2009/06/base">0</base:Kilobytes>
            <base:MimeType
xmlns:base="http://www.saic.com/precis/2009/06/base">application/uicds+xml</base:MimeType>
            <base:AssociatedGroups

```

```

xmlns:base="http://www.saic.com/precis/2009/06/base">
    <base:Identifier>IG-60be918b-2405-4d78-ae4e-
13691cd0d79e</base:Identifier>
    </base:AssociatedGroups>
</str:WorkProductProperties>
</ulex:PackageMetadata>
<ns:Digest xmlns:ns="http://ucore.gov/ucore/2.0"
xmlns:ucoregml="http://www.opengis.net/gml/3.2" xmlns:ns1="http://niem.gov/niem/niem-core/2.0"
xmlns:tns="http://uicds.org/SensorService" xmlns:have="urn:oasis:names:tc:emergency:EDXL:HAVE:1.0"
xmlns:ddms="http://metadata.dod.mil/mdr/ns/DDMS/2.0/" xmlns:geo-
oasis="urn:oasis:names:tc:emergency:EDXL:HAVE:1.0:geo-oasis"
xmlns:base="http://www.saic.com/precis/2009/06/base" xmlns:xnl="urn:oasis:names:tc:ciq:xnl:3"
xmlns:gml="http://www.opengis.net/gml" xmlns:sen="http://uicds.org/SensorService"
xmlns:ulex="ulex:message:structure:1.0">
    <ns:Event id="ObservationEvent-w1aa">
        <ns:Descriptor>SENSOR_01</ns:Descriptor>
        <ns:Identifier ns:code="" ns:codespace=""
ns:label="Observation">Sensor 1</ns:Identifier>
        <ns:What ns:code="ObservationEvent"
ns:codespace="http://ucore.gov/ucore/2.0/codespace/">
            </ns:Event>
            <ns:Location id="Location-w1aa">
                <ns:CyberAddress>
                    <ddms:virtualCoverage
ddms:address="http://MySensorService.com/SOS" ddms:protocol="IP"/>
                </ns:CyberAddress>
                <ns:GeoLocation>
                    <ns:Point>
                        <ucoregml:Point ucoregml:id="Point-w1aab3">
                            <ucoregml:pos
srsDimension="2">38.92321 -77.23262</ucoregml:pos>
                        </ucoregml:Point>
                    </ns:Point>
                </ns:GeoLocation>
            </ns:Location>
            <ns:LocatedAt id="LocatedAt-w1aab3">
                <ns:EntityRef ref="ObservationEvent-w1aa"/>
                <ns:LocationRef ref="Location-w1aa"/>
            </ns:LocatedAt>
        </ns:Digest>
        <ulex:StructuredPayload xmlns:ulex="ulex:message:structure:1.0">
            <ulex:StructuredPayloadMetadata>
                <ulex:CommunityURI>SOI</ulex:CommunityURI>
                <ulex:CommunityVersion/>
            </ulex:StructuredPayloadMetadata>
            <sen:SensorObservationInfo xmlns:sen="http://uicds.org/SensorService"
xmlns="http://www.saic.com/precis/2009/06/structures" xmlns:ns1="http://metadata.dod.mil/mdr/ns/DDMS/2.0/"
xmlns:ns="http://ucore.gov/ucore/2.0" xmlns:base="http://www.saic.com/precis/2009/06/base">
                <sen:sosURN>http://MySensorService.com/SOS</sen:sosURN>
                <sen:SensorInfo>
                    <sen:id>SENSOR_01</sen:id>
                    <sen:name>Sensor 1</sen:name>
                    <sen:description>Test Sensor Number
1</sen:description>
                    <sen:latitude>38.92321</sen:latitude>
                    <sen:longitude>-77.23262</sen:longitude>
                </sen:SensorInfo>

```



```

        </sen:SensorObservationInfo>
      </ulex:StructuredPayload>
    </str:WorkProduct>
  </wor:GetProductCurrentVersionResponse>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

9.0 Update an SOI Work Product

Use the UpdateSOIListRquest operation on the Sensor Service to update a work product.

When updating a work product, bear in mind that you are creating a new SOI Work Product. The old work product will be preserved by UICDS; however, the updated work product (which becomes the work product available to others) will have ONLY the data that you provide in the update. As a result, if you wish to continue to share data contained in the old work product you must INCLUDE that data in the updated work product.

The required data fields for updating an SOI Work Product are the same as those shown on the table in Section 2.0.

PLUS, the WorkProductIdentification (see Section 8.0, above)

Updates must start modifications from the most current version of the Work Product. The identification number for the work product is found in WorkProductIdentification and must be included in the Update.

9.1 Update SOI Work Product Request

```

<?xml version="1.0" encoding="UTF-8"?>
<soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:sen="http://uicds.org/SensorService"
  xmlns:base="http://www.saic.com/precis/2009/06/base"
  xmlns:str="http://www.saic.com/precis/2009/06/structures">
  <soapenv:Header/>
  <soapenv:Body>
    <sen:UpdateSOIRequest>
      <str:WorkProductIdentification>
        <base:Identifier>SOI-d6193ca1-8597-4709-a1aa-b37551d1cfc5</base:Identifier>
        <base:Version>1</base:Version>
        <base:Type>SOI</base:Type>
        <base:Checksum>Mon Oct 01 20:53:21 MDT2012:1:0:3560809071</base:Checksum>
        <base:State>Active</base:State>
      </str:WorkProductIdentification>
      <str:WorkProductProperties>
    </sen:UpdateSOIRequest>
  </soapenv:Body>
</soapenv:Envelope>

```

```

<sen:description>Test Sensor Number 1</sen:description>
<sen:latitude>30.0021</sen:latitude>
<sen:longitude>-77.2592</sen:longitude>
</sen:SensorInfo>
</sen:SensorObservationInfo>
</sen:UpdateSOIRequest>
</soapenv:Body>
</soapenv:Envelope>

```

9.2 Update SOI Work Product Response

The expected response to an Update Work Product Request is shown below.

```

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <sen:UpdateSOIResponse xmlns:sen="http://uicds.org/SensorService">
      <wor:WorkProductPublicationResponse xmlns:wor="http://uicds.org/WorkProductService">
        <str:WorkProductProcessingStatus
          xmlns:str="http://www.saic.com/precis/2009/06/structures">
          <base:Status
            xmlns:base="http://www.saic.com/precis/2009/06/base">Accepted</base:Status>
          </str:WorkProductProcessingStatus>
          <str:WorkProduct
            xmlns:str="http://www.saic.com/precis/2009/06/structures">
            <ulex:PackageMetadata
              xmlns:ulex="ulex:message:structure:1.0">
                <ulex:DataItemID>SOI-d6193ca1-8597-4709-a1aa-b37551d1cfc5</ulex:DataItemID>
                <ulex:DataItemReferenceID>SOI-d6193ca1-8597-4709-a1aa-
b37551d1cfc5</ulex:DataItemReferenceID>
                <ns:DataItemStatus xmlns:ns="http://ucore.gov/ucore/2.0" ns:code="Active"
ns:codespace="http://uicds.org/1.0/codespace/workproduct/status"
ns:label="UICDS Work Product Status"/>
                <ulex:DataOwnerMetadata>
                  <ns:DataOwnerIdentifier xmlns:ns="http://ucore.gov/ucore/2.0">
                    <ns1:Organization xmlns:ns1="http://metadata.dod.mil/mdr/ns/DDMS/2.0/">
                      <ns1:name>uicds.org</ns1:name>
                    </ns1:Organization>
                  </ns:DataOwnerIdentifier>
                  <ns:DataOwnerContact xmlns:ns="http://ucore.gov/ucore/2.0">
                    <ns1:Organization xmlns:ns1="http://metadata.dod.mil/mdr/ns/DDMS/2.0/">
                      <ns1:name>http://uicds.us</ns1:name>
                    </ns1:Organization>
                  </ns:DataOwnerContact>
                  <ulex:DataOwnerMetadataDomainAttribute>
                    <ulex:DomainName>UICDS EM Domain</ulex:DomainName>
                  </ulex:DataOwnerMetadataDomainAttribute>
                </ulex:DataOwnerMetadata>
                <ns:DisseminationCriteria xmlns:ns="http://ucore.gov/ucore/2.0"/>
                <str:WorkProductIdentification>
                  <base:Identifier xmlns:base="http://www.saic.com/precis/2009/06/base">SOI-d6193ca1-8597-
4709-a1aa-b37551d1cfc5</base:Identifier>
                  <base:Version xmlns:base="http://www.saic.com/precis/2009/06/base">2</base:Version>
                  <base:Type xmlns:base="http://www.saic.com/precis/2009/06/base">SOI</base:Type>
                  <base:Checksum xmlns:base="http://www.saic.com/precis/2009/06/base">Mon Oct 01

```

```

21:01:20 MDT 2012:2:0:1496868773</base:Checksum>
    <base:State xmlns:base="http://www.saic.com/precis/2009/06/base">Active</base:State>
</str:WorkProductIdentification>
<str:WorkProductProperties>
    <base:Created xmlns:base="http://www.saic.com/precis/2009/06/base">2012-10-
01T20:53:21.399-06:00</base:Created>
    <base:
xmlns:base="http://www.saic.com/precis/2009/06/base">admin@9zwgns1</base:CreatedBy>
    <base:LastUpdated xmlns:base="http://www.saic.com/precis/2009/06/base">2012-10-
01T21:01:20.058-06:00</base:LastUpdated>
    <base:LastUpdatedBy
xmlns:base="http://www.saic.com/precis/2009/06/base">admin@9zwgns1</base:LastUpdatedBy>
    <base:Kilobytes
xmlns:base="http://www.saic.com/precis/2009/06/base">0</base:Kilobytes>
    <base:MimeType
xmlns:base="http://www.saic.com/precis/2009/06/base">application/uicds+xml</base:MimeType>
    <base:AssociatedGroups
xmlns:base="http://www.saic.com/precis/2009/06/base">
        <base:Identifier>IG-77557acc-1e27-4131-9fae-414c2038e795</base:Identifier>
    </base:AssociatedGroups>
</str:WorkProductProperties>
</ulex:PackageMetadata>
<ns:Digest xmlns:ns="http://ucore.gov/ucore/2.0"
xmlns:ucoregml="http://www.opengis.net/gml/3.2"
xmlns:ns1="http://niem.gov/niem/niem-core/2.0"
xmlns:tns="http://uicds.org/SensorService"
xmlns:have="urn:oasis:names:tc:emergency:EDXL:HAVE:1.0"
xmlns:ddms="http://metadata.dod.mil/mdr/ns/DDMS/2.0/"
xmlns:geo-oasis="urn:oasis:names:tc:emergency:EDXL:HAVE:1.0:geo-oasis"
xmlns:xnl="urn:oasis:names:tc:ciq:xnl:3"
xmlns:gml="http://www.opengis.net/gml">
    <ns:Event id="ObservationEvent-w1aa">
        <ns:Descriptor>SENSOR_01</ns:Descriptor>
        <ns:Identifier ns:code="" ns:codespace="" ns:label="Observation">Sensor 1</ns:Identifier>
        <ns:What ns:code="ObservationEvent"
ns:codespace="http://ucore.gov/ucore/2.0/codespace/"/>
    </ns:Event>
    <ns:Location id="Location-w1aa">
        <ns:CyberAddress>
            <ddms:virtualCoverage ddms:address="http://MySensorService.com/SOS"
ddms:protocol="IP"/>
        </ns:CyberAddress>
        <ns:GeoLocation>
            <ns:Point>
                <ucoregml:Point ucoregml:id="Point-w1aab3">
                    <ucoregml:pos srsDimension="2">30.0021-77.2592</ucoregml:pos>
                </ucoregml:Point>
            </ns:Point>
        </ns:GeoLocation>
    </ns:Location>
    <ns:LocatedAt id="LocatedAt-w1aab3">
        <ns:EntityRef ref="ObservationEvent-w1aa"/>
        <ns:LocationRef ref="Location-w1aa"/>
    </ns:LocatedAt>
</ns:Digest>
</str:WorkProduct>
</wor:WorkProductPublicationResponse>
</sen:UpdateSOIResponse>

```

```
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

10.0 Close and Archive an SOI Work Product

10.1 Understanding Close and Archive

Closing an a work product removes it from the notification list and removes it from any GetProductCurrentVersionRequest. But it does NOT remove the work product (or any previous versions of the work product) from UICDS.

Archiving a work product permanently deletes it from UICDS.

The purpose of closing before archiving is to give the UICDS owner a chance to do whatever he or she wants to do with the set of work products. This is the point to save work products for the record, if desired. The principle behind UICDS is that UICDS is not a system of record – it is the transport path for data. Your system of record is the application you are using. Thus, there is no inherent way to create a long-term historical record of UICDS transactions except to copy the data from UICDS between the close process and the archive process.

In practice, because UICDS is not a system of record, most applications Close and Archive Work Products in one step. But that is entirely up to you.

10.2 Close and Archive Operations

Close and Archive use the WorkProductService for ALL Work Products. The same message is submitted to the WorkProductService for any work product in UICDS with the specific instruction being provided to UICDS by the WorkProductIdentification which specifies which work product to close or archive.

10.2.1 Close Message

Below is an example of a Close message for an SOI Work Product.

```
<?xml version="1.0" encoding="UTF-8"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <wp:CloseProductRequest xmlns:wp="http://uicds.org/WorkProductService"
      xmlns:preciss="http://www.saic.com/precis/2009/06/structures"
      xmlns:precisb="http://www.saic.com/precis/2009/06/base">
      <!-- NOTE: Use the identification block returned in the last request/response -->
      <!-- NOTE: If the product has been updated since then, an error will be returned -->
      <!-- which contains the most recent identification information. -->
      <preciss:WorkProductIdentification>
        <precisb:Identifier>SOI-d6193ca1-8597-4709-a1aa-b37551d1cfc5</precisb:Identifier>
        <precisb:Version>2</precisb:Version>
```

```

        <precisb:Type>SOI</precisb:Type>
        <precisb:Checksum>Mon Oct 01 21:01:20 MDT 2012:2:0:1496868773</precisb:Checksum>
        <precisb:State>Active</precisb:State>
    </precisb:WorkProductIdentification>
</wp:CloseProductRequest>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

Note that Identifier and Checksum identify what Work Product you are closing. You must substitute the Identifier and Checksum numbers from the work product you want to close. See Section 8.0 for further details.

10.2.2 Expected Response to a Close Message

You will get a response by Closing that contains your confirmation that it was closed AND the Identifier and Checksum for the NEW WP that says it is closed. Remember, Closed means it remains on UICDS. To remove it from UICDS, Archive, as described below.

```

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <wor:CloseProductResponse xmlns:wor="http://uicds.org/WorkProductService">
      <wor:WorkProductPublicationResponse>
        <str:WorkProductProcessingStatus
          xmlns:str="http://www.saic.com/precis/2009/06/structures">
          <base:Status
            xmlns:base="http://www.saic.com/precis/2009/06/base">Accepted</base:Status>
          </str:WorkProductProcessingStatus>
          <str:WorkProduct
            xmlns:str="http://www.saic.com/precis/2009/06/structures">
              <ulex:PackageMetadata
                xmlns:ulex="ulex:message:structure:1.0">
                  <ulex:DataItemID>SOI-d6193ca1-8597-4709-a1aa-b37551d1cfc5</ulex:DataItemID>
                  <ulex:DataItemReferenceID>SOI-d6193ca1-8597-4709-a1aa-
b37551d1cfc5</ulex:DataItemReferenceID>
                  <ns:DataItemStatus
                    xmlns:ns="http://ucore.gov/ucore/2.0" ns:code="Inactive"
                    ns:codespace="http://uicds.org/1.0/codespace/workproduct/status"
                    ns:label="UICDS Work Product Status"/>
                  <ulex:DataOwnerMetadata>
                    <ns:DataOwnerIdentifier
                      xmlns:ns="http://ucore.gov/ucore/2.0">
                        <ns1:Organization
                          xmlns:ns1="http://metadata.dod.mil/mdr/ns/DDMS/2.0/">
                            <ns1:name>uicds.org</ns1:name>
                          </ns1:Organization>
                        </ns:DataOwnerIdentifier>
                        <ns:DataOwnerContact xmlns:ns="http://ucore.gov/ucore/2.0">
                          <ns1:Organization
                            xmlns:ns1="http://metadata.dod.mil/mdr/ns/DDMS/2.0/">
                            <ns1:name>http://uicds.us</ns1:name>
                          </ns1:Organization>
                        </ns:DataOwnerContact>
                      </ulex:DataOwnerMetadataDomainAttribute>

```

```

        <ulex:DomainName>UICDS EM Domain</ulex:DomainName>
      </ulex:DataOwnerMetadataDomainAttribute>
    </ulex:DataOwnerMetadata>
    <ns:DisseminationCriteria
xmlns:ns="http://ucore.gov/ucore/2.0"/>
      <str:WorkProductIdentification>
        <base:Identifier
xmlns:base="http://www.saic.com/precis/2009/06/base">SOI-d6193ca1-8597-4709-a1aa-
b37551d1cfc5</base:Identifier>
          <base:Version xmlns:base="http://www.saic.com/precis/2009/06/base">3</base:Version>
          <base:Type xmlns:base="http://www.saic.com/precis/2009/06/base">SOI</base:Type>
          <base:Checksum xmlns:base="http://www.saic.com/precis/2009/06/base">Mon Oct 01
21:04:31 MDT 2012:3:0:899120517</base:Checksum>
          <base:State
xmlns:base="http://www.saic.com/precis/2009/06/base">Inactive</base:State>
        </str:WorkProductIdentification>
        <str:WorkProductProperties>
          <base:Created
xmlns:base="http://www.saic.com/precis/2009/06/base">2012-10-01T20:53:21.399-06:00</base:Created>
          <base:CreatedBy
xmlns:base="http://www.saic.com/precis/2009/06/base">admin@9zwgns1</base:CreatedBy>
          <base:LastUpdated
xmlns:base="http://www.saic.com/precis/2009/06/base">2012-10-01T21:04:31.039-06:00</base:LastUpdated>
          <base:LastUpdatedBy
xmlns:base="http://www.saic.com/precis/2009/06/base">admin@9zwgns1</base:LastUpdatedBy>
          <base:Kilobytes xmlns:base="http://www.saic.com/precis/2009/06/base">0</base:Kilobytes>
          <base:MimeType
xmlns:base="http://www.saic.com/precis/2009/06/base">application/uicds+xml</base:MimeType>
          <base:AssociatedGroups
xmlns:base="http://www.saic.com/precis/2009/06/base">
            <base:Identifier>IG-77557acc-1e27-4131-9fae-414c2038e795</base:Identifier>
          </base:AssociatedGroups>
        </str:WorkProductProperties>
      </ulex:PackageMetadata>
    <ns:Digest xmlns:ns="http://ucore.gov/ucore/2.0">
      <ns:Event id="ObservationEvent-w1aa">
        <ns:Descriptor>SENSOR_01</ns:Descriptor>
        <ns:Identifier ns:code="" ns:codespace="" ns:label="Observation">Sensor 1</ns:Identifier>
        <ns:What ns:code="ObservationEvent"
ns:codespace="http://ucore.gov/ucore/2.0/codespace"/>
      </ns:Event>
      <ns:Location id="Location-w1aa">
        <ns:CyberAddress>
          <ddms:virtualCoverage
xmlns:ddms="http://metadata.dod.mil/mdr/ns/DDMS/2.0/"
ddms:address="http://MySensorService.com/SOS" ddms:protocol="IP"
            />
        </ns:CyberAddress>
        <ns:GeoLocation>
          <ns:Point>
            <ucoregml:Point
xmlns:ucoregml="http://www.opengis.net/gml/3.2"
              ucoregml:id="Point-w1aab3">
              <ucoregml:pos srsDimension="2">30.0021 -77.2592</ucoregml:pos>
            </ucoregml:Point>
          </ns:Point>
        </ns:GeoLocation>
      </ns:Location>

```

```

        <ns:LocatedAt id="LocatedAt-w1aab3">
          <ns:EntityRef ref="ObservationEvent-w1aa"/>
          <ns:LocationRef ref="Location-w1aa"/>
        </ns:LocatedAt>
      </ns:Digest>
    </str:WorkProduct>
  </wor:WorkProductPublicationResponse>
</wor:CloseProductResponse>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

10.2.3 Archive Work Product Message

To Archive you must use the NEW Closed WP Identifier and Checksum, substitute it in the Archive message (as shown in Section 8.0), and then submit the Archive message. At that point, the work product will be removed from UICDS.

```

<?xml version="1.0" encoding="UTF-8"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <wp:ArchiveProductRequest xmlns:wp="http://uicds.org/WorkProductService"

xmlns:preciss="http://www.saic.com/precis/2009/06/structures"

xmlns:precisb="http://www.saic.com/precis/2009/06/base">
      <!-- NOTE: Closing a workproduct updates it's version number, so to
archive it -->
      <!--      you will need to pass the identification block returned by
the close operation -->
      <preciss:WorkProductIdentification>
        <precisb:Identifier>SOI-d6193ca1-8597-4709-a1aa-
b37551d1cfc5</precisb:Identifier>
        <precisb:Version>3</precisb:Version>
        <precisb:Type>SOI</precisb:Type>
        <precisb:Checksum>Mon Oct 01 21:04:31 MDT
2012:3:0:899120517</precisb:Checksum>
        <precisb:State>Active</precisb:State>
      </preciss:WorkProductIdentification>
    </wp:ArchiveProductRequest>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

10.2.4 Response to Archive Work Product

This response indicates that the work product has been removed from UICDS.

```

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">

```



```

<SOAP-ENV:Header/>
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <wor:ArchiveProductResponse

xmlns:wor="http://uicds.org/WorkProductService">
  <str:WorkProductProcessingStatus
    xmlns:str="http://www.saic.com/precis/2009/06/structures">
    <base:Status

xmlns:base="http://www.saic.com/precis/2009/06/base">Accepted</base:Status>
  </str:WorkProductProcessingStatus>
</wor:ArchiveProductResponse>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

11.0 Sensor Service Methods Summary

Developers have the option of using any of the following methods to elicit performance from UICDS services.

Sensor Observation Service Method Summary	
CreateSOI	Creates an Sensor Observation Info (SOI) work product and optionally associate it to an incident.
GetSOI	Returns an Sensor Observation Info (SOI) work product for the input work product identification.
GetSOIList	Returns a list of Sensor Observation Info (SOI) work products associated with a given incident.
UpdateSOI	Updates an Sensor Observation Info (SOI) work product.
Reference: https://uicds-test3.saic.com/secure/apidocs/com/saic/uicds/core/em/endpoint/SensorServiceEndpoint.html	

12.0 Viewing UICDS Work Products for Confirmation

There are three methods for inspecting the UICDS SOI Work Product to validate it. The programmatic way to obtain the SOI Work Product is by submitting the IG number of the associated incident to the Sensor Service. An internal look at the work product on the UICDS Core uses the UICDS Console. An external look at the results of the work product can be obtained using Google Earth™

12.1 Programmatic Retrieval of SOI Work Product

To retrieve a SOI Work Product you submit the following message to the Sensor Service containing the Associated Interest Group ID ... the IG number described in Section 6.2).

12.2 Get SOI Request Example

The Sensor Service has its own way to directly obtain a SOI Work Product, an example and response are shown below.

```
<?xml version="1.0" encoding="UTF-8"?>
<SOAP-ENV:Envelope
  xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header />
  <SOAP-ENV:Body>
    <tns:GetSOIRequest
      xmlns:tns="http://uicds.org/SensorService"
      xmlns:str="http://www.saic.com/precis/2009/06/structures"
      xmlns:base="http://www.saic.com/precis/2009/06/base">
      <str:WorkProductIdentification>
        <base:Identifier>SOI-d6193ca1-8597-4709-a1aa-b37551d1cfc5</base:Identifier>
        <base:Version>1</base:Version>
        <base:Type>SOI</base:Type>
        <base:Checksum>Mon Oct 01 20:53:21 MDT 2012:1:0:3560809071</base:Checksum>
        <base:State>Active</base:State>
      </str:WorkProductIdentification>
    </tns:GetSOIRequest>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

12.3 Response to GetSOI Example

```
<?xml version="1.0" encoding="UTF-8"?>
<SOAP-ENV:Envelope
  xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
  <SOAP-ENV:Header />
  <SOAP-ENV:Body>
    <sen:GetSOIResponse
      xmlns:sen="http://uicds.org/SensorService">
      <str:WorkProduct
        xmlns:str="http://www.saic.com/precis/2009/06/structures">
        <ulex:PackageMetadata
          xmlns:ulex="ulex:message:structure:1.0">
            <ulex:DataItemID>SOI-2b0468dc-7644-411f-b74c-
a5160dc0e8a8</ulex:DataItemID>
            <ulex:DataItemReferenceID>SOI-2b0468dc-7644-411f-b74c-
a5160dc0e8a8</ulex:DataItemReferenceID>
            <ns:DataItemStatus
              xmlns:ns="http://ucore.gov/ucore/2.0"
              ns:code="Active"
              ns:codespace="http://uicds.org/1.0/codespace/workproduct/status"
              ns:label="UICDS Work Product Status" />
            <ulex:DataOwnerMetadata>
              <ns:DataOwnerIdentifier
```

```

        xmlns:ns="http://ucore.gov/ucore/2.0">
        <ns1:Organization
xmlns:ns1="http://metadata.dod.mil/mdr/ns/DDMS/2.0/">
        <ns1:name>ucids.org</ns1:name>
        </ns1:Organization>
        </ns:DataOwnerIdentifier>
        <ns:DataOwnerContact
        xmlns:ns="http://ucore.gov/ucore/2.0">
        <ns1:Organization
xmlns:ns1="http://metadata.dod.mil/mdr/ns/DDMS/2.0/">
        <ns1:name>http://ucids.us</ns1:name>
        </ns1:Organization>
        </ns:DataOwnerContact>
        <ulex:DataOwnerMetadataDomainAttribute>
        <ulex:DomainName>UICDS EM Domain</ulex:DomainName>
        </ulex:DataOwnerMetadataDomainAttribute>
        </ulex:DataOwnerMetadata>
        <ns:DisseminationCriteria
        xmlns:ns="http://ucore.gov/ucore/2.0" />
        <str:WorkProductIdentification>
        <base:Identifier
xmlns:base="http://www.saic.com/precis/2009/06/base">SOI-d6193ca1-8597-4709-
a1aa-b37551d1cfc5</base:Identifier>
        <base:Version
xmlns:base="http://www.saic.com/precis/2009/06/base">1</base:Version>
        <base:Type
xmlns:base="http://www.saic.com/precis/2009/06/base">SOI</base:Type>
        <base:Checksum
xmlns:base="http://www.saic.com/precis/2009/06/base">Mon Oct 01 20:53:21 MDT
2012:1:0:3560809071</base:Checksum>
        <base:State xmlns:base="http://www.saic.com/precis/2009/06/base">Active</base:State>
        </str:WorkProductIdentification>
        <str:WorkProductProperties>
        <base:Created xmlns:base="http://www.saic.com/precis/2009/06/base">2012-10-
01T20:53:21.399-06:00</base:Created>
        <base:CreatedBy
xmlns:base="http://www.saic.com/precis/2009/06/base">admin@9zwgns1</base:CreatedBy>
        <base:LastUpdated
xmlns:base="http://www.saic.com/precis/2009/06/base">2012-10-01T20:53:21.399-
06:00</base:LastUpdated>
        <base:LastUpdatedBy
xmlns:base="http://www.saic.com/precis/2009/06/base">admin@9zwgns1</base:LastUpdatedBy>
        <base:Kilobytes
xmlns:base="http://www.saic.com/precis/2009/06/base">0</base:Kilobytes>
        <base:MimeType
xmlns:base="http://www.saic.com/precis/2009/06/base">application/ucids
+xml</base:MimeType>
        <base:AssociatedGroups
xmlns:base="http://www.saic.com/precis/2009/06/base">
        <base:Identifier>IG-77557acc-1e27-4131-9fae-414c2038e795</base:Identifier>
        </base:AssociatedGroups>
        </str:WorkProductProperties>
        </ulex:PackageMetadata>
        <ns:Digest
        xmlns:ns="http://ucore.gov/ucore/2.0"
        xmlns:ucoregml="http://www.opengis.net/gml/3.2"
        xmlns:ns1="http://niem.gov/niem/niem-core/2.0"
        xmlns:tns="http://ucids.org/SensorService"

```

```

xmlns:have="urn:oasis:names:tc:emergency:EDXL:HAVE:1.0"
xmlns:ddms="http://metadata.dod.mil/mdr/ns/DDMS/2.0/"
xmlns:geo-oasis="urn:oasis:names:tc:emergency:EDXL:HAVE:1.0:geo-oasis"
xmlns:base="http://www.saic.com/precis/2009/06/base"
xmlns:xnl="urn:oasis:names:tc:ciq:xnl:3"
xmlns:gml="http://www.opengis.net/gml"
xmlns:ulex="ulex:message:structure:1.0">
<ns:Event
  id="ObservationEvent-w1aa">
    <ns:Descriptor>SENSOR_01</ns:Descriptor>
    <ns:Identifier
      ns:code=""
      ns:codespace=""
      ns:label="Observation">Sensor 1</ns:Identifier>
    <ns:What
      ns:code="ObservationEvent ns:codespace="http://ucore.gov/ucore/2.0/codespace/" />
    </ns:Event>
    <ns:Location
      id="Location-w1aa">
        <ns:CyberAddress>
          <ddms:virtualCoverage
            ddms:address="http://MySensorService.com/SOS"
            ddms:protocol="IP" />
          </ns:CyberAddress>
          <ns:GeoLocation>
            <ns:Point>
              <ucoregml:Point
                ucoregml:id="Point-w1aab3">
                  <ucoregml:pos
                    srsDimension="2">38.92321 -
77.23262</ucoregml:pos>
                </ucoregml:Point>
              </ns:Point>
            </ns:GeoLocation>
          </ns:Location>
          <ns:LocatedAt
            id="LocatedAt-w1aab3">
              <ns:EntityRef
                ref="ObservationEvent-w1aa" />
              <ns:LocationRef
                ref="Location-w1aa" />
            </ns:LocatedAt>
          </ns:Digest>
        <ulex:StructuredPayload
          xmlns:ulex="ulex:message:structure:1.0">
            <ulex:StructuredPayloadMetadata>
              <ulex:CommunityURI>SOI</ulex:CommunityURI>
              <ulex:CommunityVersion />
            </ulex:StructuredPayloadMetadata>
            <sen:SensorObservationInfo
              xmlns="http://www.saic.com/precis/2009/06/structures"
              xmlns:ns1="http://metadata.dod.mil/mdr/ns/DDMS/2.0/"
              xmlns:ns="http://ucore.gov/ucore/2.0"
              xmlns:base="http://www.saic.com/precis/2009/06/base">
                <sen:sosURN>http://MySensorService.com/SOS</sen:sosURN>
                <sen:SensorInfo>
                  <sen:id>SENSOR_01</sen:id>
                  <sen:name>Sensor 1</sen:name>

```

```

    <sen:description>Test Sensor Number
1</sen:description>
    <sen:latitude>38.92321</sen:latitude>
    <sen:longitude>-77.23262</sen:longitude>
  </sen:SensorInfo>
</sen:SensorObservationInfo>
</ulex:StructuredPayload>
</str:WorkProduct>
</sen:GetSOIResponse>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

12.4 Using the UICDS Console

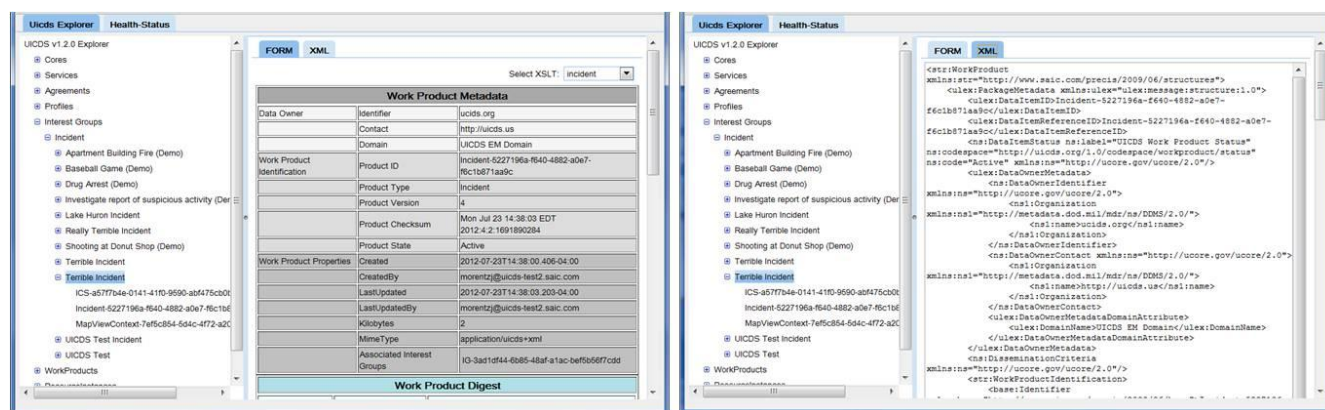
Use the UICDS Console (or AdminConsole if you have permissions) to view the resulting work product after posting.

Access your UICDS Console at <https://localhost.saic.com/uicds/Console.html> where “localhost” is your UICDS Core.

For example, developers have access to hosted UICDS Cores for testing. With access credentials, you may use the Console to view your test UICDS Work Products to:

<https://uicds-test2.saic.com/uicds/Console.html>

The UICDS Console will provide two views of the UICDS Work Product as shown below. One is in a structured form (XSLT) and the second as an XML document. Note that the XSLT is user-defined if you wish to create your own view of the work product.



These views of the UICDS Console show, on the left, the XSLT view of work product Metadata, Digest, and Payload and on the right the XML view of the UICDS Work Product.

12.5 Using Google Earth™

In the Appendix (Section 13.4) is a guide to looking at these same work products in Google Earth™ as one no-cost tool to check your SOI Work Products.

13.0 Mapping of the Payload to the UCore Digest

UICDS automatically digests selected NIEM data elements contained in the payload into the UCore standard data elements. The following table shows those NIEM elements in the payload and the UCore Digest data element name. Required UICDS data elements are shown in beige and optional in blue.

The Digest data is contained in the KML and GeoRSS feeds as well as in the notification of the successful posting of a UICDS XML template and the successful creation of a SOI Work Product.

UICDS Common Data Element Name	Payload UICDS Data Element	Digest Data Element (from UCore)
OGC SOS Sensor URL	<sen:sosURN>	<ns:Location <ns:CyberAddress> <ddms:virtualCoverage ddms:address=
Sensor ID	<sen:id>	
Name	<sen:name>	<ns:Identifier ns:code=
Description	<sen:description>	<ns:Descriptor>
Location	<sen:latitude>38.92321</sen:latitude> <sen:longitude>-77.23262</sen:longitude>	<ns:GeoLocation> <ns:Point> <ucoregml:Point <ucoregml:pos srsDimension=
OGC Get Observation (Measurement Request from Sensor)		
Incident	<sen:incidentID>	<base:Identifier>
OGC Observation and Measurement Result		

14.0 Best Practices for that Pesky “Other” Data

UICDS follows standards. The SOI Work Product is derived from NIEM. Thus, occasionally an application developer may find it necessary to transmit data that does not fit conveniently in the NIEM, or other standard, structure.

To accomplish this, UICDS has created a “best practice” for employing a data element to contain “other” data. Because this data is usually also important to the application end-user, the UICDS best practice is designed to make the data easily (a) understandable by other applications that receive the UICDS Work Product and (b) viewable in a nicely structured format. Thus, the best practice for incorporating data into the description is to use HTML formatting to define key:value pairs. As shown below, because the key:value pairs are clearly delimited, applications can understand them. In addition, UICDS digests the Description data element into a KML feed. When Google Earth or other KML-compliant applications consume that KML feed, they are smart enough to understand the HTML inserted into the KML feed and provide formatting in a end-user-friendly visualization.

To insert additional data into any data element, the following HTML formatting should be used as a best practice.

```
<Descriptor><![CDATA[<br />
    <b>Name:</b> Value <br />
    <b>Name:</b> Value <br />
    <b>Name:</b> Value <br />]]></Descriptor>
```

This HTML structure ensures (through CDATA) that the inserted HTML is not parsed by an XML parser. The allows the Name element to display in bold face on Google Earth™ or other KML-enabled applications and
 inserts a return after each value forming a nicely formatted column.

15.0 Links to the Sensor Service WSDL

The UICDS Sensor Service WSDL can be found locally after the UICDS Core has been downloaded or is available from the UICDS test cores.

From the downloaded local UICDS Core:

<http://localhost/uicds/core/ws/services/SensorService.wsdl>

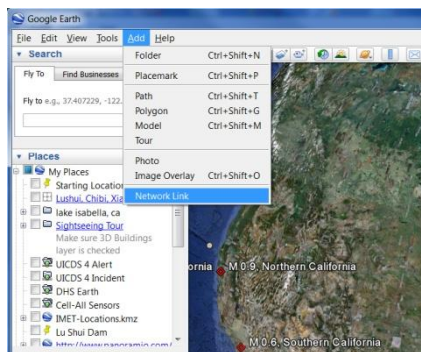
From a hosted UICDS Core

<https://uicds-test2.saic.com/uicds/core/ws/services/SensorService.wsdl>

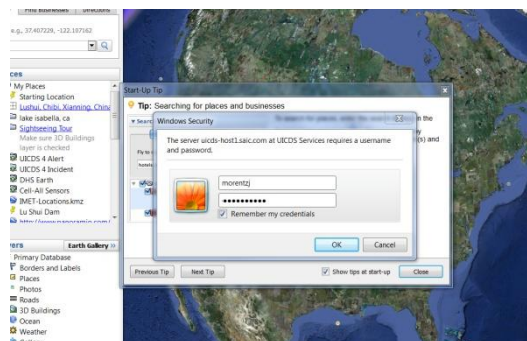
16.0 Appendix

16.1 View SOI Work Products in Google Earth™

1. Download Google Earth from <http://www.google.com/earth/download/ge/agree.html>
2. Use the Add menu item to add a Network Link. Select a name that will appear in the Places section of Google Earth.



3. There are options to adding the network link
 - a. Note: The local Pilot UICDS Core URL should be substituted for the “uicds-host4.saic.com” link shown in the URLs below.
 - b. This is an example of a network link just for Incidents: <https://uicds-host4.saic.com/uicds/pub/search?format=kml&productType=Incident>
 - c. You can add several UICDS Work Products to a single link making all of them display at once. This URL will get you UICDS Incidents and Alerts and Resources and Sensor Observations and Link Work Products of type text and html. <https://uicds-host3.saic.com/uicds/pub/search?productState=Active&productType=Incident&productType=Alert&productType=ResponseToRequestInformation&productType=SOI&productType=text/html&format=kml>
4. Click the Refresh tab and select Periodically in the dropdown box. Select a time (minutes rather than seconds makes sense.)
5. Click OK.
6. You will be prompted to enter your access credentials to the UICDS Core named in the network link. (For the hosted UICDS test cores, these are the credentials you received when the Software User Agreement was signed and you have used them to download the UICDS Development Kit.)



7. The network link name you entered will appear in the Places directory on the left. Check the box to display content on the UICDS Core.
8. The link will refresh at the period you set. To force refresh, right click on the name and select refresh.
9. Navigate the tree below the link name by clicking on the + sign.
10. You can force the map to the location of any item shown in Places by double clicking on it.

Example Incidents in Google Earth

Below the results of posting the two example incidents, the Terrible Incident located toward the top of the map as a point and the Really Terrible Incident polygon showing the formatting of the text from the UICDS Work Product into a KML format.

