eTASS Annunciator Interface Control Document

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eTASS Annunciator
Interface Control Document

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1 INTRODUCTION

This document is written as the Interface Control Document between the eTASS Annunciators and other Command and Control (C2) Systems. This document's primary focus is on XML message exchange, and the messages described herein conform to SEIWG ICD-0100. It is anticipated that the data exchange between C2 systems primarily focuses upon the exchange of Targets (Hostile, Friendly, etc.), supplemented by reports pertaining to the network of sensors and other devices reporting to the respective C2 systems. Future revisions of this ICD will discuss mechanisms for exchanging Tactical Graphics including geometries and overlays.

The primary XML interface between the eTASS and the C2 System is through the eTASS Web Service. The eTASS Web Service provides a mechanism for publish and subscribe distribution of data from the eTASS Annunciator. The input and output of the eTASS Web Service is embedded into the Simple Object Access Protocol (SOAP) messaging protocol. The formats for the messages are provided in Appendix A (WSDL) of this document.

1.1 OTHER SUPPORTED INTERFACES

The eTASS Annunciator accepts data inputs through interface control protocols other than the ICD-100 protocol. Detailed descriptions of these interfaces are provided in the referenced documents.

1.1.1 SERIAL PROTOCOLS

ICD-TASS-001 interface protocol defines the process of sending and receiving messages to control functions or features over a data link that supports an EIA-232, EIA-422, or EIA-485 electrical interface at each end of the link.

SEIWG-005A defines the protocol by which TASS and REMBASS messages are transmitted over UHF/VHF links. The eTASS annunciator communicates with TASS sensors via this protocol.

Additional serial protocols include multiple camera control protocols (Pelco, Burle) as well as GPS (NMEA 183) are also supported.

1.1.2 NETWORK-BASED PROTOCOLS

ICD-TASS-002 was the predecessor to ICD_100. It is still supported by the eTASS annunciator though several of the ICD 002 XML enumerations have been since deprecated.

Cursor on Target (CoT) can be used to transmit "what, where, when" target information between systems. It is similar in many ways to ICD-100.

The Annunciator also supports various undocumented protocols included Counter Strike Task Force XML and the AFATDS AXE applet protocol.

2 REFERENCES

- “Interface Control Document ICD-0100 for XML Information Exchange,” SEIWG Technical Architecture, Northrop Grumman Mission Systems, submitted 31 March 2005
- “Interface Control Document for Control of Pan/Tilt Mounts, Cameras and Other Devices," ICD-TASS-001, Sandia National Laboratories, May 2003
- “Cursor on Target," CoT, Mitre Corporation
- TASS- ICD-002, Generic Device Interface Control Document using XML, Sandia National Laboratories, Rev. 0.4, dated 12 May 2003
- SEIWG-005A, Interface Specification (RF Data Transmission Interfaces) for the DoD Base and Installation Security System (BISS)
- Pelco "D" Protocol Manual," Version 2 Revision 1, August 15, 2003
- Thales Multiband Inter/Intra Team Radio Control Protocol Specification, Document Number 1900151, Rev. E, November 1, 2005
- Allegiant main CPU Interface Software Command Console Language, Philips Communication & Security Systems Inc.
- Multi-Channel Receiver Display, Rev. C, Qual-Tron Inc.

3 MESSAGE FLOW TO ETASS

3.1 STARTUP MESSAGE FLOW

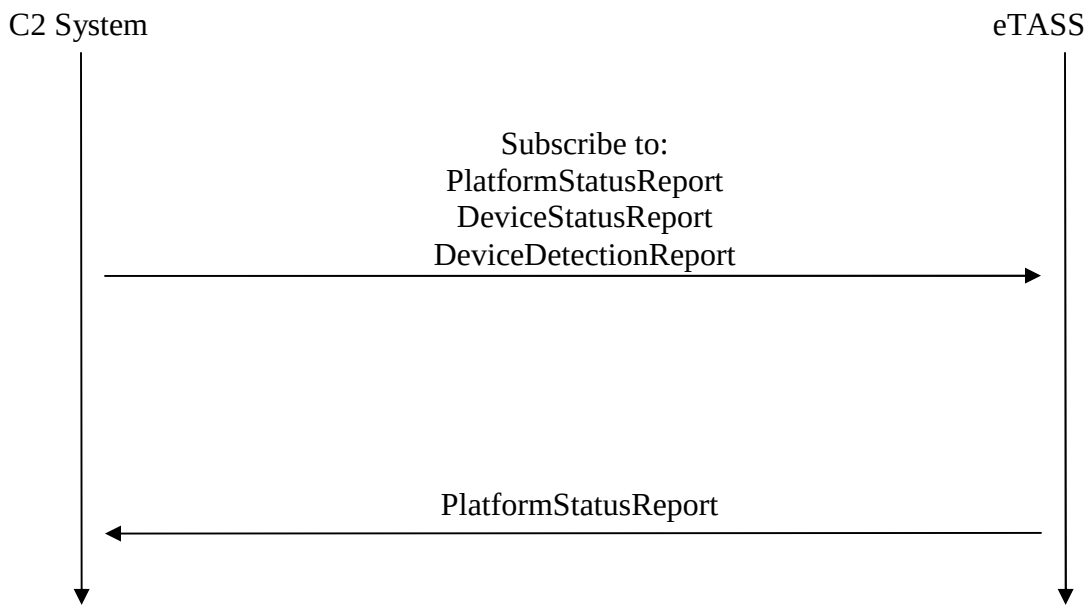


Figure 1

Upon startup C2 System shall subscribe to the following messages from the eTASS by sending subscription request for the following reports:

- PlatformStatusReport: This version of the message contains all known status values of the eTASS along with all of its current devices, including identification information of the sensors and devices, location, communication state, and overall device health.
- DeviceStatusReport: This version of the message is used for notifying a state change in a device. It contains all known status values of the alarmed device, including location, communication state, and overall device health. Communication state and overall device health changes will be forwarded immediately. Alarms, however, will be forwarded upon the alarm being validated. Alarms can be validated by the user assessment of the alarm as a true threat, or by other connected devices. This prevents the propagation of Nuisance and False alarms to external systems or higher echelons.
- DeviceDetectionReport: This version of the message contains one or more alarms and/or persistent targets detected by the said device. The targets that are forwarded are designated targets from either the eTASS operator or confirmed threats from connected devices (for example, laser designated targets). The targets designated by an operator may have media URLs of the videos associated with them.

Establishing an initial connection to the eTASS is implicitly accomplished via sending of a subscription request. The eTASS will disconnect when the C2 System is no longer available to receive its subscriptions from the eTASS.

3.2 SUBSCRIPTION MESSAGE FLOW

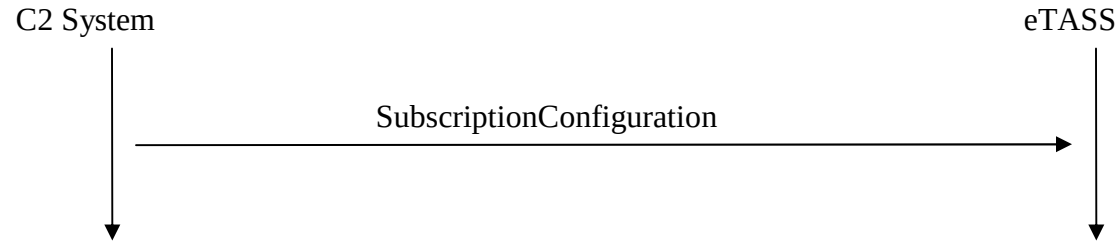


Figure 2

C2 System subscribes to one or more of the reports available from eTASS by sending a SubscriptionConfiguration message. SubscriptionConfiguration is also used for unsubscribing from subscribed reports. Unsubscribing from all of the reports will result in disconnecting from eTASS.

3.2.1 SUBSCRIPTIONCONFIGURATION

The following XML is a sample of the SubscriptionConfiguration message that is sent by the C2 System:

```
<?xml version="1.0" encoding="UTF-8"?>
<SubscriptionConfiguration MessageType="Request" RequestId="1">
    <DeviceIdentification>
        <DeviceName>ETASS-001</DeviceName>
        <DeviceCategory>Annunciator</DeviceCategory>
        <DeviceType>Annunciator</DeviceType>
    </DeviceIdentification>
    <RequestorIdentification>
        <DeviceName>CCC-1</DeviceName>
        <Base>Base 1</Base>
        <Sector>Sector 1</Sector>
        <DeviceCategory>C2 Node</DeviceCategory>
        <DeviceType>C2 Server</DeviceType>
    </DeviceIdentification>
    <Subscription Selected="true">PlatformStatusReport</Subscription>
    <Subscription Selected="true">DeviceStatusReport</Subscription>
    <Subscription Selected="true">DeviceDetectionReport</Subscription>
</SubscriptionConfiguration>
```

For each Subscription element, the Selected attribute must be set to either true or false to indicate whether the C2 System is subscribing to or unsubscribing from the specified reports. The reports that are not specified in the message will not have their selection statuses changed. Reports are not subscribed to, by default. Requestors must provide identifying information in the RequestorIdentification element. In the above example, C2 system CCC-1 is subscribing to PlatformStatusReports, DeviceStatusReports, and DeviceDetectionReports.

3.3 PLATFORM STATUS MESSAGE FLOW

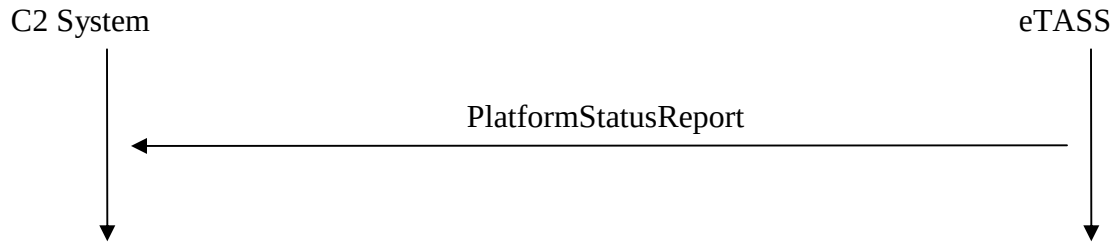


Figure 3

A PlatformStatusReport shall be sent by eTASS 1) upon an initial subscription of PlatformStatusReport, 2) whenever a platform is added, or 3) whenever a platform is deleted from eTASS.

3.3.1 PLATFORMSTATUSREPORT

Upon an initial subscription of PlatformStatusReport, eTASS sends a PlatformStatusReport containing all known status values of the eTASS along with all of its current devices, including location, communication state, and overall device health. The following XML is a sample of the PlatformStatusReport message that is sent by the eTASS:

```
<?xml version="1.0" encoding="UTF-8"?>
<PlatformStatusReport>
    <PlatformIdentification>
        <DeviceName>ETASS-001</DeviceName>
        <DeviceCategory>Annunciator</DeviceCategory>
        <DeviceType>Annunciator</DeviceType>
    </PlatformIdentification>
    <Status>
        <DeviceState>Secure</DeviceState>
        <CommunicationState>OK</CommunicationState>
        <UpdateTime Zone="GMT">2004-02-13T19:30:47.103</UpdateTime>
    </Status>
    <DeviceStatusReport>
        <DeviceIdentification>
            <DeviceName>ETASS-001.WST-001</DeviceName>
            <Base>Base 1</Base>
            <Sector>Sector 1</Sector>
            <DeviceCategory>Assessment Device</DeviceCategory>
            <DeviceType>Imager</DeviceType>
        </DeviceIdentification>
        <Status>
            <DeviceState>Secure</DeviceState>
            <CommunicationState>OK</CommunicationState>
            <UpdateTime Zone="GMT">2004-02-26T04:10:36.522</UpdateTime>
        </Status>
        <Location>
            <LocationType>
                <GeodeticLocation Datum="WGS84">
                    <Latitude Units="Decimal Degrees">33.86052</Latitude>
```

```
                    <Longitude Units="Decimal Degrees">-118.238672</Longitude>
                    <Altitude Units="Meters" Reference="MSL">10</Altitude>
                </GeodeticLocation>
            </LocationType>
            <UpdateTime Zone="GMT">2004-02-26T04:02:18.446</UpdateTime>
        </Location>
        <Details>
            <UpdateTime Zone="GMT">2004-02-26T04:02:18.446</UpdateTime>
            <Range Units="Meters" MinimumValue="3.5" MaximumValue="350.0">100.0</Range>
            <ElevationAngle Units="Degrees" MinimumValue="-90.0" MaximumValue="90.0">-45.0</ElevationAngle>
            <Azimuth Units="Degrees" MinimumValue="-180.0" MaximumValue="180.0">30.0</Azimuth>
            <FieldOfView Units="Degrees">30.0</FieldOfView>
        </Details>
    </DeviceStatusReport>
    <DeviceStatusReport>
        <DeviceIdentification>
            <DeviceName>ETASS-001.MST-001</DeviceName>
            <Base>Base 1</Base>
            <Sector>Sector 1</Sector>
            <DeviceCategory>Assessment Device</DeviceCategory>
        </DeviceIdentification>
        <Status>
            <DeviceState>Secure</DeviceState>
            <CommunicationState>OK</CommunicationState>
            <UpdateTime Zone="GMT">2004-02-13T09:30:47.121</UpdateTime>
        </Status>
        <Location>
            <LocationType>
                <GeodeticLocation Datum="WGS84">
                    <Latitude Units="Decimal Degrees">33.86052</Latitude>
                    <Longitude Units="Decimal Degrees">-118.238672</Longitude>
                    <Altitude Units="Meters" Reference="MSL">10</Altitude>
                </GeodeticLocation>
            </LocationType>
            <UpdateTime Zone="GMT">2004-02-26T04:02:18.446</UpdateTime>
        </Location>
        <Details>
            <UpdateTime Zone="GMT">2004-02-26T04:02:18.446</UpdateTime>
            <Range Units="Meters" MinimumValue="3.5" MaximumValue="350.0">100.0</Range>
            <ElevationAngle Units="Degrees" MinimumValue="-90.0" MaximumValue="90.0">-45.0</ElevationAngle>
            <Azimuth Units="Degrees" MinimumValue="-180.0" MaximumValue="180.0">30.0</Azimuth>
            <FieldOfView Units="Degrees">30.0</FieldOfView>
        </Details>
    </DeviceStatusReport>
    <DeviceStatusReport>
        <DeviceIdentification>
            <DeviceName>ETASS-001.PSR-001</DeviceName>
            <Base>Base 1</Base>
            <Sector>Sector 1</Sector>
            <DeviceCategory>Assessment Device</DeviceCategory>
        </DeviceIdentification>
        <Status>
            <DeviceState>Secure</DeviceState>
            <CommunicationState>OK</CommunicationState>
            <UpdateTime Zone="GMT">2004-02-03T22:08:02.291</UpdateTime>
        </Status>
        <Location>
            <LocationType>
                <GeodeticLocation Datum="WGS84">
                    <Latitude Units="Decimal Degrees">33.8600533</Latitude>
                    <Longitude Units="Decimal Degrees">-118.2375683</Longitude>
                    <Altitude Units="Meters" Reference="MSL">12.3</Altitude>
                </GeodeticLocation>
```

```
            </LocationType>
            <UpdateTime Zone="GMT">2004-02-03T20:01:02.000</UpdateTime>
        </Location>
        <Details>
            <UpdateTime Zone="GMT">2004-02-03T22:08:02.291</UpdateTime>
            <MinimumRange Units="Meters">3.5</MinimumRange>
            <MaximumRange Units="Meters">350.0</MaximumRange>
            <Azimuth Units="Degrees">6.9</Azimuth>
        </Details>
    </DeviceStatusReport>
</PlatformStatusReport>
```

Please note the usage of dot notation naming convention when identifying a device within a platform. The sample above is shown with the DeviceState of Secure and the CommunicationState of OK for the platform and its onboard devices.

Whenever a new platform is added to eTASS, eTASS sends a PlatformStatusReport containing all known status values of the added platform, including its location, communication state, and overall platform health. The following XML is a sample of the PlatformStatusReport message that is sent by the eTASS:

```
<?xml version="1.0" encoding="UTF-8"?>
<PlatformStatusReport>
    <PlatformIdentification>
        <DeviceName>ETASS-001.OWN-001</DeviceName>
        <Base>Base 1</Base>
        <Sector>Sector 1</Sector>
        <DeviceCategory>C2 Node</DeviceCategory>
    </PlatformIdentification>
    <Status>
        <DeviceState>Secure</DeviceState>
        <CommunicationState>OK</CommunicationState>
        <UpdateTime Zone="GMT">2004-02-13T19:30:47.103</UpdateTime>
    </Status>
    <Location>
        <LocationType>
            <GeodeticLocation Datum="WGS84">
                <Latitude Units="Decimal Degrees">33.86052</Latitude>
                <Longitude Units="Decimal Degrees">-118.238672</Longitude>
                <Altitude Units="Meters" Reference="MSL">10</Altitude>
            </GeodeticLocation>
        </LocationType>
        <UpdateTime Zone="GMT">2004-02-26T04:02:18.446</UpdateTime>
    </Location>
</PlatformStatusReport>
```

Whenever a platform is deleted from eTASS, eTASS sends a PlatformStatusReport with DeviceState set to Deleted. The following XML is a sample of the PlatformStatusReport message that is sent by the eTASS:

```
<?xml version="1.0" encoding="UTF-8"?>
<PlatformStatusReport>
    <PlatformIdentification>
        <DeviceName>ETASS-001.OWN-001</DeviceName>
        <Base>Base 1</Base>
        <Sector>Sector 1</Sector>
        <DeviceCategory>C2 Node</DeviceCategory>
    </PlatformIdentification>
```

```
    <Status>
        <DeviceState>Deleted</DeviceState>
        <UpdateTime Zone="GMT">2004-02-13T19:30:47.103</UpdateTime>
    </Status>
</PlatformStatusReport>
```

3.4 DEVICE STATUS MESSAGE FLOW

Figure 4

A DeviceStatusReport shall be sent by eTASS whenever 1) a device is added, 2) a device is deleted, or 3) a device state changes (e.g. alarmed, accessed, secure, tamper). If the device state changes to alarmed and a detected target information is available, DeviceDetectionReport shall follow.

3.4.1 DEVICESTATUSREPORT

Whenever a new device is added to eTASS, eTASS sends a DeviceStatusReport containing all known status values of the added device, including its location, communication state, and overall device health. The following XML is a sample of the DeviceStatusReport message that is sent by the eTASS:

```
<?xml version="1.0" encoding="UTF-8"?>
<DeviceStatusReport>
    <DeviceIdentification>
        <DeviceName>ETASS-001.PSR-001</DeviceName>
        <Base>Base 1</Base>
        <Sector>Sector 1</Sector>
    </DeviceIdentification>
    <Status>
        <DeviceState>Secure</DeviceState>
        <CommunicationState>OK</CommunicationState>
        <UpdateTime Zone="GMT">2004-02-03T22:08:02.291</UpdateTime>
    </Status>
    <Location>
        <LocationType>
            <GeodeticLocation Datum="WGS84">
                <Latitude Units="Decimal Degrees">33.8600533</Latitude>
                <Longitude Units="Decimal Degrees">-118.2375683</Longitude>
                <Altitude Units="Meters" Reference="MSL">12.3</Altitude>
            </GeodeticLocation>
        </LocationType>
        <UpdateTime Zone="GMT">2004-02-03T20:01:02.000</UpdateTime>
    </Location>
</DeviceStatusReport>
```

Whenever a device is deleted from eTASS, eTASS sends a DeviceStatusReport with DeviceState set to Deleted. The following XML is a sample of the DeviceStatusReport message that is sent by the eTASS:

```
<?xml version="1.0" encoding="UTF-8"?>
<DeviceStatusReport>
    <DeviceIdentification>
        <DeviceName>ETASS-001.PSR-001</DeviceName>
        <Base>Base 1</Base>
        <Sector>Sector 1</Sector>
    </DeviceIdentification>
    <Status>
        <DeviceState>Deleted</DeviceState>
        <UpdateTime Zone="GMT">2004-02-03T22:08:02.291</UpdateTime>
    </Status>
</DeviceStatusReport>
```

The following XML is a sample of the DeviceStatusReport message that is sent by the eTASS when one of its devices alarms:

```
<?xml version="1.0" encoding="UTF-8"?>
<DeviceStatusReport>
    <DeviceIdentification>
        <DeviceName>ETASS-001.001-001</DeviceName>
        <Base>Base 1</Base>
        <Sector>Sector 1</Sector>
        <DeviceCategory>Sensor</DeviceCategory>
        <DeviceType>Sensor</DeviceType>
    </DeviceIdentification>
    <Status>
        <DeviceState>Alarmed</DeviceState>
        <CommunicationState>OK</CommunicationState>
        <UpdateTime Zone="GMT">2004-02-26T04:10:36.522</UpdateTime>
    </Status>
</DeviceStatusReport>
```

The following XML is a sample of the DeviceStatusReport message that is sent by the eTASS to update the coverage arc of a device:

```
<?xml version="1.0" encoding="UTF-8"?>
<DeviceStatusReport>
    <DeviceIdentification>
        <DeviceName>ETASS-001.WST-001</DeviceName>
        <Base>Base 1</Base>
        <Sector>Sector 1</Sector>
        <DeviceCategory>Assessment Device</DeviceCategory>
        <DeviceType>Imager</DeviceType>
    </DeviceIdentification>
    <Status>
        <DeviceState>Secure</DeviceState>
        <CommunicationState>OK</CommunicationState>
        <UpdateTime Zone="GMT">2004-02-26T04:10:36.522</UpdateTime>
    </Status>
    <Location>
        <LocationType>
            <GeodeticLocation Datum="WGS84">
                <Latitude Units="Decimal Degrees">33.86052</Latitude>
                <Longitude Units="Decimal Degrees">-118.238672</Longitude>
                <Altitude Units="Meters" Reference="MSL">10</Altitude>
            </GeodeticLocation>
        </LocationType>
        <UpdateTime Zone="GMT">2004-02-26T04:02:18.446</UpdateTime>
    </Location>
```

```
    <Details>
        <UpdateTime Zone="GMT">2004-02-26T04:02:18.446</UpdateTime>
        <Range Units="Meters" MinimumValue="3.5" MaximumValue="350.0">100.0</Range>
        <ElevationAngle Units="Degrees" MinimumValue="-90.0" MaximumValue="90.0">-45.0</ElevationAngle>
        <Azimuth Units="Degrees" MinimumValue="-180.0" MaximumValue="180.0">30.0</Azimuth>
        <FieldOfView Units="Degrees">30.0</FieldOfView>
    </Details>
</DeviceStatusReport>
```

If the coverage arc of a device is updated as a result of auto-pointing to a target detection, then the identification of that target shall be included in the <StatusDetails> block with the <Name> of the status set to "AssignedToTarget". The following XML is a sample of the DeviceStatusReport message that is sent by the eTASS:

```
<?xml version="1.0" encoding="UTF-8"?>
<DeviceStatusReport>
    <DeviceIdentification>
        <DeviceName>ETASS-001.WST-001</DeviceName>
        <Base>Base 1</Base>
        <Sector>Sector 1</Sector>
        <DeviceCategory>Assessment Device</DeviceCategory>
        <DeviceType>Imager</DeviceType>
    </DeviceIdentification>
    <Status>
        <DeviceState>Secure</DeviceState>
        <CommunicationState>OK</CommunicationState>
        <StatusDetails>
            <Name>AssignedToTarget</Name>
            <CurrentValue>101</CurrentValue>
        </StatusDetails>
        <UpdateTime Zone="GMT">2004-02-26T04:10:36.522</UpdateTime>
    </Status>
    <Location>
        <LocationType>
            <GeodeticLocation Datum="WGS84">
                <Latitude Units="Decimal Degrees">33.86052</Latitude>
                <Longitude Units="Decimal Degrees">-118.238672</Longitude>
                <Altitude Units="Meters" Reference="MSL">10</Altitude>
            </GeodeticLocation>
        </LocationType>
        <UpdateTime Zone="GMT">2004-02-26T04:02:18.446</UpdateTime>
    </Location>
    <Details>
        <UpdateTime Zone="GMT">2004-02-26T04:02:18.446</UpdateTime>
        <Range Units="Meters" MinimumValue="3.5" MaximumValue="350.0">100.0</Range>
        <ElevationAngle Units="Degrees" MinimumValue="-90.0" MaximumValue="90.0">-45.0</ElevationAngle>
        <Azimuth Units="Degrees" MinimumValue="-180.0" MaximumValue="180.0">30.0</Azimuth>
        <FieldOfView Units="Degrees">30.0</FieldOfView>
    </Details>
</DeviceStatusReport>
```

3.5 DEVICE DETECTION MESSAGE FLOW

Whenever an alarm or a persistent target is detected by a device, DeviceDetectionReport shall be sent to C2 System. DeviceDetectionReport is used to report basic Detection information as well as more advanced detection information (one or more operator designated targets), including specific location information (either absolute or relative to the device) of the targets and operator-generated classification information. The targets designated by eTASS operator may have media URLs associated with them. The eTASS has the capability to accept analog video feeds from its connected devices and forwards the media URL so that the video can be played via a web browser or a standalone media player. DeviceDetectionReport is preferred over TrackReport because the DeviceDetectionReport conveys sufficient information about the detected targets.

3.5.1 DEVICEDETECTIONREPORT

The following XML is a sample DeviceDetectionReport used to publish the locations of the one or more designated targets

```
<?xml version="1.0" encoding="UTF-8"?>
<DeviceDetectionReport>
    <DeviceDetectionRecord>
        <DeviceIdentification>
            <DeviceName>ETASS-001.SCP-001</DeviceName>
            <Base>Base 1</Base>
            <Sector>Sector 1</Sector>
        </DeviceIdentification>
        <Target>
            <ID>1</ID>
            <TargetLocation>
                <LocationType>
                    <GeodeticLocation Datum="WGS84">
                        <Latitude Units="Decimal Degrees">33.8596390</Latitude>
                        <Longitude Units="Decimal Degrees">-118.2374479</Longitude>
                        <Altitude Units="Meters" Reference="MSL">12.3</Altitude>
                    </GeodeticLocation>
                </LocationType>
            </TargetLocation>
            <Classification>Explosion</Classification>
            <UpdateTime Zone="GMT">2004-02-03T14:08:52.211</UpdateTime>
        </Target>
        <Target>
            <ID>2</ID>
            <TargetLocation>
                <LocationType>
                    <GeodeticLocation Datum="WGS84">
                        <Latitude Units="Decimal Degrees">33.8600779</Latitude>
```

```
                    <Longitude Units="Decimal Degrees">-118.2373133</Longitude>
                    <Altitude Units="Meters" Reference="MSL">12.3</Altitude>
                </GeodeticLocation>
            </LocationType>
        </TargetLocation>
        <Classification>Attack</Classification>
        <MediaURL>bwims://10.1.1.18/13&playrate=30</MediaURL>
        <UpdateTime Zone="GMT">2004-02-03T14:08:53.211</UpdateTime>
    </Target>
  </DeviceDetectionRecord>
</DeviceDetectionReport>

<?xml version="1.0" encoding="UTF-8"?>
<DeviceDetectionReport>
  <DeviceDetectionRecord>
    <DeviceIdentification>
      <DeviceName>ETASS-001.SCP-001</DeviceName>
      <Base>Base 1</Base>
      <Sector>Sector 1</Sector>
    </DeviceIdentification>
    <Target>
      <ID>101</ID>
      <TargetLocation>
        <LocationType>
          <GeodeticLocation Datum="WGS84">
            <Latitude Units="Decimal Degrees">20.0</Latitude>
            <Longitude Units="Decimal Degrees">160.0</Longitude>
            <Altitude Units="Meters" Reference="MSL">3.14159265358979</Altitude>
          </GeodeticLocation>
        </LocationType>
      </TargetLocation>
      <Classification>Vehicle</Classification>
      <Affiliation>Hostile</ Affiliation>
      <Confidence>High</Confidence>
      <Heading Units="Degrees">60.0</Heading>
      <Speed Units="MetersPerSecond">0.123</Speed>
      <Description></Description>
      <MediaURL> bwims://10.1.1.18/13&playrate=30</MediaURL>
      <UpdateTime Zone="GMT">2004-12-17T09:30:47.002</UpdateTime>
    </Target>
  </DeviceDetectionRecord>
</DeviceDetectionReport>
```

The samples above are shown with optional elements for the <MediaURL> information. <MediaURL> is used for accessing digital video feeds.

4 MESSAGE FLOW FROM ETASS TO C2 SYSTEM

4.1 STARTUP MESSAGE FLOW

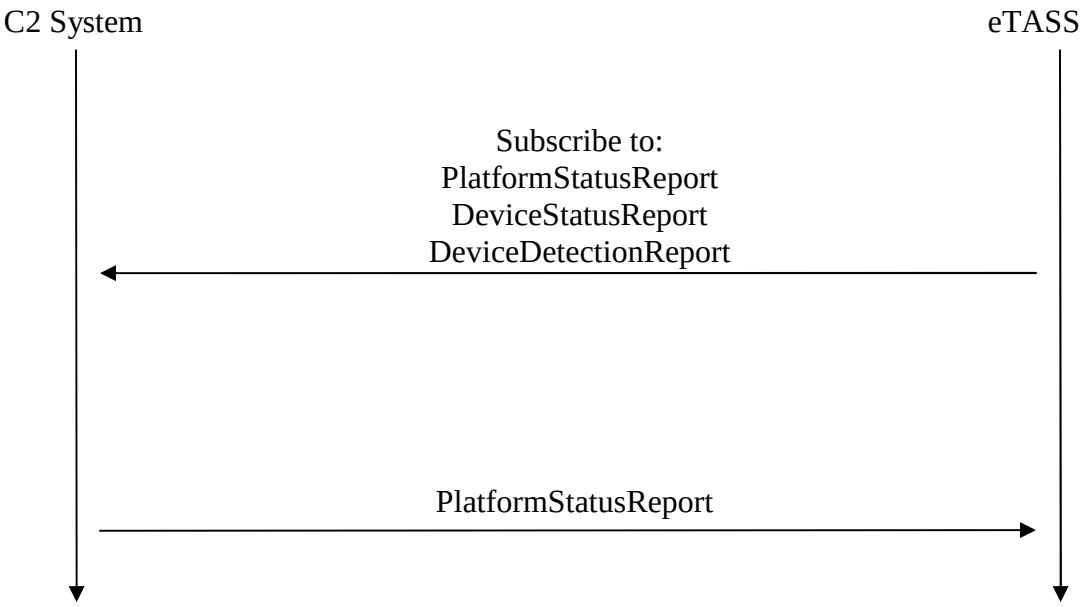


Figure 5

Upon startup eTASS shall subscribe to the following messages from the C2 System by sending subscription request for the following reports:

- PlatformStatusReport: This version of the message contains all known status values of the C2 System along with all of its current devices, including identification information of the sensors and devices, location, communication state, and overall device health.
- DeviceStatusReport: This version of the message is used for notifying a state change in a device. It contains all known status values of the alarmed device, including location, communication state, and overall device health.
- DeviceDetectionReport: This version of the message contains one or more alarms and/or persistent targets detected by the said device.

Establishing an initial connection to the C2 System is implicitly accomplished via sending of a subscription request. The C2 System will disconnect when the eTASS is not available to receive its subscriptions from the C2 System.

4.2 SUBSCRIPTION MESSAGE FLOW

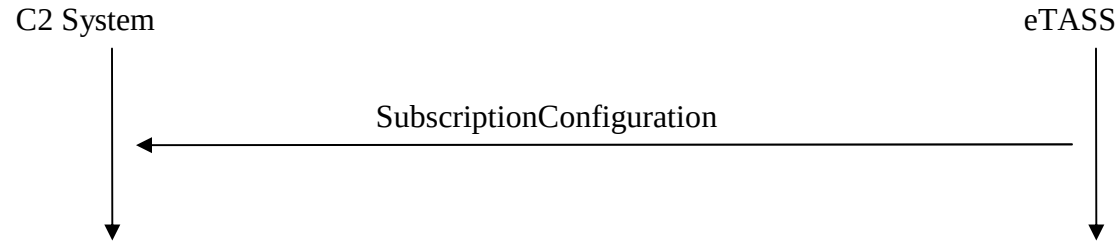


Figure 6

The eTASS subscribes to one or more of the reports available from the C2 System by sending a SubscriptionConfiguration message. SubscriptionConfiguration is also used for unsubscribing from subscribed reports. Unsubscribing from all of the reports will result in disconnecting eTASS from C2 System.

4.2.1 SUBSCRIPTIONCONFIGURATION

The following XML is a sample of the SubscriptionConfiguration message that is sent by the eTASS:

```
<?xml version="1.0" encoding="UTF-8"?>
<SubscriptionConfiguration MessageType="Request" RequestId="1">
    <DeviceIdentification>
        <DeviceName>CCC-001</DeviceName>
        <DeviceCategory>C2 Node</DeviceCategory>
        <DeviceType>C2 Server</DeviceType>
    </DeviceIdentification>
    <RequestorIdentification>
        <DeviceName>ETASS-001</DeviceName>
        <DeviceCategory>Annunciator</DeviceCategory>
        <DeviceType>Annunciator</DeviceType>
        <Base>Base 1</Base>
        <Sector>Sector 1</Sector>
    </DeviceIdentification>
    <Subscription Selected="true">PlatformStatusReport</Subscription>
    <Subscription Selected="true">DeviceStatusReport</Subscription>
    <Subscription Selected="true">DeviceDetectionReport</Subscription>
</SubscriptionConfiguration>
```

For each Subscription element, the Selected attribute must be set to either true or false to indicate whether the eTASS is subscribing to or unsubscribing from the specified reports. The reports that are not specified in the message will not have their selection statuses changed. Reports are not subscribed to, by default. Requestors must provide identifying information in the RequestorIdentification element. In the above example, ETASS-001 is subscribing to PlatformStatusReports, DeviceStatusReports, and DeviceDetectionReports.

4.3 PLATFORM STATUS MESSAGE FLOW

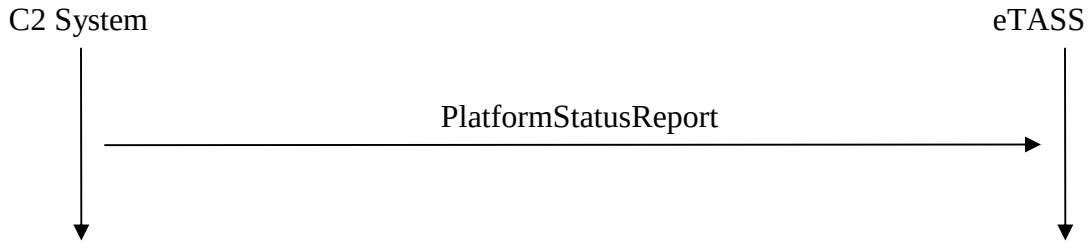


Figure 7

A PlatformStatusReport shall be sent by C2 System 1) upon an initial subscription of PlatformStatusReport, 2) whenever a platform is added, or 3) whenever a platform is deleted from C2 System.

4.3.1 PLATFORMSTATUSREPORT

Upon an initial subscription of PlatformStatusReport, C2 System sends a PlatformStatusReport containing all known status values of the C2 System along with all of its current devices, including location, communication state, and overall device health. The following XML is a sample of the PlatformStatusReport message that is sent by the C2 System:

```
<?xml version="1.0" encoding="UTF-8"?>
<PlatformStatusReport>
    <PlatformIdentification>
        <DeviceName>CCC-001</DeviceName>
        <Base>Base 1</Base>
        <Sector>Sector 1</Sector>
        <DeviceCategory>C2 Node</DeviceCategory>
    </PlatformIdentification>
    <Status>
        <DeviceState>Secure</DeviceState>
        <CommunicationState>OK</CommunicationState>
        <UpdateTime Zone="GMT">2004-02-13T19:30:47.103</UpdateTime>
    </Status>
    <DeviceStatusReport>
        <DeviceIdentification>
            <DeviceName> CCC-001.BFT-001</DeviceName>
            <Base>Base 1</Base>
            <Sector>Sector 1</Sector>
            <DeviceCategory>Sensor</DeviceCategory>
            <DeviceType>Blue Force Tracking</DeviceType>
        </DeviceIdentification>
        <Status>
            <DeviceState>Secure</DeviceState>
            <CommunicationState>OK</CommunicationState>
            <UpdateTime Zone="GMT">2004-02-26T04:10:36.522</UpdateTime>
        </Status>
        <Location>
            <LocationType>
                <GeodeticLocation Datum="WGS84">
                    <Latitude Units="Decimal Degrees">33.86052</Latitude>
                    <Longitude Units="Decimal Degrees">-118.238672</Longitude>
                    <Altitude Units="Meters" Reference="MSL">10</Altitude>
```

```
                </GeodeticLocation>
            </LocationType>
            <UpdateTime Zone="GMT">2004-02-26T04:02:18.446</UpdateTime>
        </Location>
        <Details>
            <UpdateTime Zone="GMT">2004-02-26T04:02:18.446</UpdateTime>
            <Range Units="Meters" MinimumValue="3.5" MaximumValue="350.0">100.0</Range>
            <ElevationAngle Units="Degrees" MinimumValue="-90.0" MaximumValue="90.0">-45.0</ElevationAngle>
            <Azimuth Units="Degrees" MinimumValue="-180.0" MaximumValue="180.0">30.0</Azimuth>
            <FieldOfView Units="Degrees">30.0</FieldOfView>
        </Details>
    </DeviceStatusReport>
    <DeviceStatusReport>
        <DeviceIdentification>
            <DeviceName>CCC-001.SRS-001</DeviceName>
            <Base>Base 1</Base>
            <Sector>Sector 1</Sector>
            <DeviceCategory>Sensor</DeviceCategory>
        </DeviceIdentification>
        <Status>
            <DeviceState>Secure</DeviceState>
            <CommunicationState>OK</CommunicationState>
            <UpdateTime Zone="GMT">2004-02-13T09:30:47.121</UpdateTime>
        </Status>
        <Location>
            <LocationType>
                <GeodeticLocation Datum="WGS84">
                    <Latitude Units="Decimal Degrees">33.86052</Latitude>
                    <Longitude Units="Decimal Degrees">-118.238672</Longitude>
                    <Altitude Units="Meters" Reference="MSL">10</Altitude>
                </GeodeticLocation>
            </LocationType>
            <UpdateTime Zone="GMT">2004-02-26T04:02:18.446</UpdateTime>
        </Location>
    </DeviceStatusReport>
</PlatformStatusReport>
```

Please note the usage of dot notation naming convention when identifying a device within a platform. The sample above is shown with the DeviceState of Secure and the CommunicationState of OK for the platform and its onboard devices.

Whenever a new platform is added to C2 System, C2 System sends a PlatformStatusReport containing all known status values of the added platform, including its location, communication state, and overall platform health. The following XML is a sample of the PlatformStatusReport message that is sent by the C2 System:

```
<?xml version="1.0" encoding="UTF-8"?>
<PlatformStatusReport>
    <PlatformIdentification>
        <DeviceName>CCC-001.OWN-001</DeviceName>
        <Base>Base 1</Base>
        <Sector>Sector 1</Sector>
        <DeviceCategory>C2 Node</DeviceCategory>
    </PlatformIdentification>
    <Status>
        <DeviceState>Secure</DeviceState>
        <CommunicationState>OK</CommunicationState>
        <UpdateTime Zone="GMT">2004-02-13T19:30:47.103</UpdateTime>
    </Status>
    <Location>
```

```
        <LocationType>
            <GeodeticLocation Datum="WGS84">
                <Latitude Units="Decimal Degrees">33.86052</Latitude>
                <Longitude Units="Decimal Degrees">-118.238672</Longitude>
                <Altitude Units="Meters" Reference="MSL">10</Altitude>
            </GeodeticLocation>
        </LocationType>
        <UpdateTime Zone="GMT">2004-02-26T04:02:18.446</UpdateTime>
    </Location>
</PlatformStatusReport>
```

Whenever a platform is deleted from C2 System, C2 System sends a PlatformStatusReport with DeviceState set to Deleted. The following XML is a sample of the PlatformStatusReport message that is sent by the C2 System:

```
<?xml version="1.0" encoding="UTF-8"?>
<PlatformStatusReport>
    <PlatformIdentification>
        <DeviceName>CCC-001.OWN-001</DeviceName>
        <Base>Base 1</Base>
        <Sector>Sector 1</Sector>
        <DeviceCategory>C2 Node</DeviceCategory>
    </PlatformIdentification>
    <Status>
        <DeviceState>Deleted</DeviceState>
        <UpdateTime Zone="GMT">2004-02-13T19:30:47.103</UpdateTime>
    </Status>
</PlatformStatusReport>
```

4.4 DEVICE STATUS MESSAGE FLOW

Figure 8

A DeviceStatusReport shall be sent by C2 System whenever 1) a device is added, 2) a device is deleted, or 3) a device state changes (e.g. alarmed, accessed, secure, tamper). If the device state changes to alarmed and a detected target information is available, DeviceDetectionReport shall follow.

4.4.1 DEVICESTATUSREPORT

Whenever a new device is added to C2 System, C2 System sends a DeviceStatusReport containing all known status values of the added device, including its location, communication state, and overall device health. The following XML is a sample of the DeviceStatusReport message that is sent by the C2 System:

```
<?xml version="1.0" encoding="UTF-8"?>
<DeviceStatusReport>
    <DeviceIdentification>
        <DeviceName>CCC-001.BFT-001</DeviceName>
        <Base>Base 1</Base>
        <Sector>Sector 1</Sector>
    </DeviceIdentification>
    <Status>
        <DeviceState>Secure</DeviceState>
        <CommunicationState>OK</CommunicationState>
        <UpdateTime Zone="GMT">2004-02-03T22:08:02.291</UpdateTime>
    </Status>
    <Location>
        <LocationType>
            <GeodeticLocation Datum="WGS84">
                <Latitude Units="Decimal Degrees">33.8600533</Latitude>
                <Longitude Units="Decimal Degrees">-118.2375683</Longitude>
                <Altitude Units="Meters" Reference="MSL">12.3</Altitude>
            </GeodeticLocation>
        </LocationType>
        <UpdateTime Zone="GMT">2004-02-03T20:01:02.000</UpdateTime>
    </Location>
</DeviceStatusReport>
```

Whenever a device is deleted from C2 System, C2 System sends a DeviceStatusReport with DeviceState set to Deleted. The following XML is a sample of the DeviceStatusReport message that is sent by the C2 System:

```
<?xml version="1.0" encoding="UTF-8"?>
```

```
<DeviceStatusReport>
    <DeviceIdentification>
        <DeviceName>CCC-001.BFT-001</DeviceName>
        <Base>Base 1</Base>
        <Sector>Sector 1</Sector>
    </DeviceIdentification>
    <Status>
        <DeviceState>Deleted</DeviceState>
        <UpdateTime Zone="GMT">2004-02-03T22:08:02.291</UpdateTime>
    </Status>
</DeviceStatusReport>
```

The following XML is a sample of the DeviceStatusReport message that is sent by the C2 System when one of its devices alarms:

```
<?xml version="1.0" encoding="UTF-8"?>
<DeviceStatusReport>
    <DeviceIdentification>
        <DeviceName>CCC-001.001-001</DeviceName>
        <Base>Base 1</Base>
        <Sector>Sector 1</Sector>
        <DeviceCategory>Assessment Device</DeviceCategory>
        <DeviceType>Imager</DeviceType>
    </DeviceIdentification>
    <Status>
        <DeviceState>Alarmed</DeviceState>
        <CommunicationState>OK</CommunicationState>
        <UpdateTime Zone="GMT">2004-02-26T04:10:36.522</UpdateTime>
    </Status>
</DeviceStatusReport>
```

4.5 DEVICE DETECTION MESSAGE FLOW

Figure 9

Whenever an alarm or a target information including radar events (POO, POI) and blue force tracking is available, DeviceDetectionReport shall be sent to eTASS. DeviceDetectionReport is used to report basic Detection information as well as more advanced detection information (one or more Targets), including specific location information (either absolute or relative to the sensor) of the targets. Based on how the eTASS is configured, targets included in a DeviceDetectionReport may be forwarded to connected devices to auto-point to the targets or to a preconfigured location. For example, cameras may point to a target or to a pre-configured location, UAV's may receive a go-to request, weapon systems may receive auto-slew requests, and other C2 systems may receive the targets.

4.5.1 DEVICEDETECTIONREPORT

The following XML is a sample DeviceDetectionReport used to publish the Point-of-Origin and Point-of-Impact information of a target to eTASS:

```
<?xml version="1.0" encoding="UTF-8"?>
<DeviceDetectionReport>
    <DeviceDetectionRecord>
        <DeviceIdentification>
            <DeviceName>CCC-001.BFT-001</DeviceName>
            <Base>Base 1</Base>
            <Sector>Sector 1</Sector>
        </DeviceIdentification>
        <Target>
            <ID>BF1</ID>
            <TargetLocation>
                <LocationType>
                    <GeodeticLocation Datum="WGS84">
                        <Latitude Units="Decimal Degrees">20.0</Latitude>
                        <Longitude Units="Decimal Degrees">160.0</Longitude>
                        <Altitude Units="Meters" Reference="MSL">3.14159265358979</Altitude>
                    </GeodeticLocation>
                </LocationType>
            </TargetLocation>
            <Classification>PointOfOrigin</Classification>
            <Affiliation>Hostile</ Affiliation>
            <Confidence>High</Confidence>
            <Description></Description>
            <UpdateTime Zone="GMT">2004-12-17T09:30:47.002</UpdateTime>
        </Target>
        <Target>
            <ID>BF2</ID>
```

```
            <TargetLocation>
                <LocationType>
                    <GeodeticLocation Datum="WGS84">
                        <Latitude Units="Decimal Degrees">20.0</Latitude>
                        <Longitude Units="Decimal Degrees">160.0</Longitude>
                        <Altitude Units="Meters" Reference="MSL">3.14159265358979</Altitude>
                    </GeodeticLocation>
                </LocationType>
            </TargetLocation>
            <Classification>PointOfImpact</Classification>
            <Affiliation>Hostile</ Affiliation>
            <Confidence>High</Confidence>
            <Description></Description>
            <UpdateTime Zone="GMT">2004-12-17T09:30:47.002</UpdateTime>
        </Target>
    </DeviceDetectionRecord>
</DeviceDetectionReport>
```

Depending on how eTASS is configured, there is a special case in which a pending target with an Id of "LookTo" may cause a device to auto-point to the target location. The following XML is a sample of the DeviceDetectionReport message that is sent by the C2 System to cause a device to auto-point:

```
<?xml version="1.0" encoding="UTF-8"?>
<DeviceDetectionReport>
    <DeviceDetectionRecord>
        <DeviceIdentification>
            <DeviceName> CCC-001.BFT-001</DeviceName>
            <Base>Base 1</Base>
            <Sector>Sector 1</Sector>
        </DeviceIdentification>
        <Target>
            <ID>LookTo</ID>
            <TargetLocation>
                <LocationType>
                    <GeodeticLocation Datum="WGS84">
                        <Latitude Units="Decimal Degrees">20.0</Latitude>
                        <Longitude Units="Decimal Degrees">160.0</Longitude>
                        <Altitude Units="Meters" Reference="MSL">3.14159265358979</Altitude>
                    </GeodeticLocation>
                </LocationType>
            </TargetLocation>
            <Affiliation>Pending</Affiliation>
            <UpdateTime Zone="GMT">2004-12-17T09:30:47.002</UpdateTime>
        </Target>
    </DeviceDetectionRecord>
</DeviceDetectionReport>
```

APPENDIX A (WSDL)

This section describes available Web Service Description Language (WSDL) methods hosted by the eTASS Web Service. WSDL methods are required to subscribe and receive data from the eTASS. These methods are subdivided into two categories. These categories are client interface methods, DataSubscriptionServiceInterface, and server interface methods, DataDistributionServiceInterface. These methods must be instantiated by the clients in order to subscribe and receive the eTASS data.

DataSubscriptionServiceInterface WSDL

The **subscribe** function is used to request data for distribution.

```
int subscribe
(
        String subscriptionMessage,
        String callbackURI
);
```

The subscribe function takes as input parameters, SubscriptionConfiguration message and the callback URI. This function returns *0* upon success and an error code upon failure. Error codes will be defined in the later version.

The **isAlive** function is used to check whether the server is up and running.

```
boolean isAlive();
```

This function returns *true* if the server is up and running and **fail** otherwise.

```
<?xml version="1.0" encoding="UTF-8"?>
<wsdl:definitions targetNamespace="urn:subscriber.generated.soap" xmlns:impl="urn:subscriber.generated.soap"
xmlns:intf="urn:subscriber.generated.soap" xmlns:apachesoap="http://xml.apache.org/xml-soap"
xmlns:wsdlsoap="http://schemas.xmlsoap.org/wsdl/soap/" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/">
    <wsdl:types>
        <schema xmlns="http://www.w3.org/2001/XMLSchema" targetNamespace="urn:subscriber.generated.soap"
elementFormDefault="qualified">
            <element name="isAliveReturn" type="xsd:boolean"/>
            <element name="in0" type="xsd:string"/>
            <element name="in1" type="xsd:string"/>
            <element name="subscribeReturn" type="xsd:int"/>
        </schema>
    </wsdl:types>
    <wsdl:message name="isAliveRequest"/>
    <wsdl:message name="subscribeRequest">
        <wsdl:part name="in0" element="impl:in0"/>
        <wsdl:part name="in1" element="impl:in1"/>
    </wsdl:message>
    <wsdl:message name="isAliveResponse">
        <wsdl:part name="isAliveReturn" element="impl:isAliveReturn"/>
    </wsdl:message>
```

```
    <wsdl:message name="subscribeResponse">
        <wsdl:part name="subscribeReturn" element="impl:subscribeReturn"/>
    </wsdl:message>
    <wsdl:portType name="DataSubscriber">
        <wsdl:operation name="isAlive">
            <wsdl:input name="isAliveRequest" message="impl:isAliveRequest"/>
            <wsdl:output name="isAliveResponse" message="impl:isAliveResponse"/>
        </wsdl:operation>
        <wsdl:operation name="subscribe" parameterOrder="in0 in1">
            <wsdl:input name="subscribeRequest" message="impl:subscribeRequest"/>
            <wsdl:output name="subscribeResponse" message="impl:subscribeResponse"/>
        </wsdl:operation>
    </wsdl:portType>
    <wsdl:binding name="DataSubscriptionServiceSoapBinding" type="impl:DataSubscriber">
        <wsdlsoap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
        <wsdl:operation name="isAlive">
            <wsdlsoap:operation soapAction=""/>
            <wsdl:input name="isAliveRequest">
                <wsdlsoap:body use="literal"/>
            </wsdl:input>
            <wsdl:output name="isAliveResponse">
                <wsdlsoap:body use="literal"/>
            </wsdl:output>
        </wsdl:operation>
        <wsdl:operation name="subscribe">
            <wsdlsoap:operation soapAction=""/>
            <wsdl:input name="subscribeRequest">
                <wsdlsoap:body use="literal"/>
            </wsdl:input>
            <wsdl:output name="subscribeResponse">
                <wsdlsoap:body use="literal"/>
            </wsdl:output>
        </wsdl:operation>
    </wsdl:binding>
    <wsdl:service name="DataSubscriberService">
        <wsdl:port name="DataSubscriptionService" binding="impl:DataSubscriptionServiceSoapBinding">
            <wsdlsoap:address location="http://localhost:8000/axis/services/DataSubscriptionService"/>
        </wsdl:port>
    </wsdl:service>
</wsdl:definitions>
```

DataDistributionServiceInterface WSDL

The **putData** function distributes the requested publication to the data subscriber.

```
int putData
(
        String xml                          /* XML report */
        String reportName                   /* Name of the report */
);
```

The reportName parameter can be one of the following reports:
PlatformStatusReport
DeviceStatusReport
DeviceDetectionReport

This function returns *0* upon success and an error code upon failure. Error codes will be defined in the later version.

The **isAlive** function is used to check whether the client is up and running. The server checks the communication state of the client by invoking this function at a pre-specified interval. If **isAlive** returns *false* and does not return *true* within the pre-specified timeout period, then the communication state is deemed failed.

boolean isAlive();

This function returns *true* if the server is up and running and *fail* otherwise.

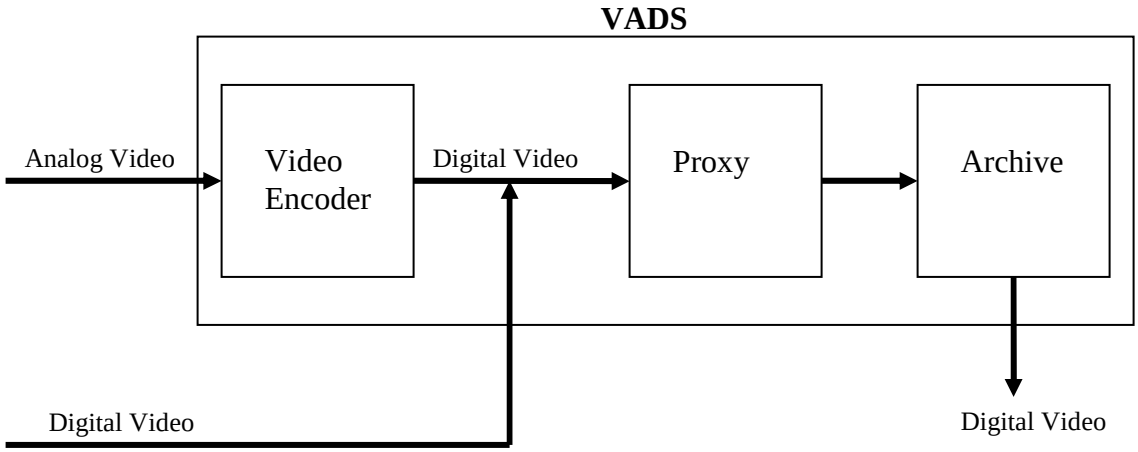
```
<?xml version="1.0" encoding="UTF-8"?>
<wsdl:definitions targetNamespace="urn:publisher.generated.soap" xmlns:impl="urn:publisher.generated.soap"
xmlns:intf="urn:publisher.generated.soap" xmlns:apachesoap="http://xml.apache.org/xml-soap"
xmlns:wsdlsoap="http://schemas.xmlsoap.org/wsdl/soap/" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/">
    <wsdl:types>
        <schema xmlns="http://www.w3.org/2001/XMLSchema" targetNamespace="urn:publisher.generated.soap"
elementFormDefault="qualified">
            <element name="isAliveReturn" type="xsd:boolean"/>
            <element name="in0" type="xsd:string"/>
            <element name="in1" type="xsd:string"/>
            <element name="putDataReturn" type="xsd:int"/>
        </schema>
    </wsdl:types>
    <wsdl:message name="putDataResponse">
        <wsdl:part name="putDataReturn" element="impl:putDataReturn"/>
    </wsdl:message>
    <wsdl:message name="isAliveResponse">
        <wsdl:part name="isAliveReturn" element="impl:isAliveReturn"/>
    </wsdl:message>
    <wsdl:message name="putDataRequest">
        <wsdl:part name="in0" element="impl:in0"/>
        <wsdl:part name="in1" element="impl:in1"/>
    </wsdl:message>
    <wsdl:message name="isAliveRequest"/>
    <wsdl:portType name="DataPublisher">
        <wsdl:operation name="isAlive">
            <wsdl:input name="isAliveRequest" message="impl:isAliveRequest"/>
            <wsdl:output name="isAliveResponse" message="impl:isAliveResponse"/>
        </wsdl:operation>
        <wsdl:operation name="putData" parameterOrder="in0 in1">
            <wsdl:input name="putDataRequest" message="impl:putDataRequest"/>
            <wsdl:output name="putDataResponse" message="impl:putDataResponse"/>
        </wsdl:operation>
    </wsdl:portType>
    <wsdl:binding name="DataDistributionServiceSoapBinding" type="impl:DataPublisher">
        <wsdlsoap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
        <wsdl:operation name="isAlive">
            <wsdlsoap:operation soapAction=""/>
            <wsdl:input name="isAliveRequest">
                <wsdlsoap:body use="literal"/>
            </wsdl:input>
            <wsdl:output name="isAliveResponse">
                <wsdlsoap:body use="literal"/>
```

```
            </wsdl:output>
        </wsdl:operation>
        <wsdl:operation name="putData">
            <wsdlsoap:operation soapAction=""/>
            <wsdl:input name="putDataRequest">
                <wsdlsoap:body use="literal"/>
            </wsdl:input>
            <wsdl:output name="putDataResponse">
                <wsdlsoap:body use="literal"/>
            </wsdl:output>
        </wsdl:operation>
    </wsdl:binding>
    <wsdl:service name="DataPublisherService">
        <wsdl:port name="DataDistributionService" binding="impl:DataDistributionServiceSoapBinding">
            <wsdlsoap:address location="http://localhost:8000/axis/services/DataDistributionService"/>
        </wsdl:port>
    </wsdl:service>
</wsdl:definitions>
```

APPENDIX B (VIDEO INTERFACES)

The Video Archiving and Distribution System (VADS) is a digital video recording system which allows an operator the ability to monitor, record, and archive multiple video feeds simultaneously. All video is recorded and stored locally on the VADS and is then made available to users over the local area network (LAN).

The flow of video data in VADS is outlined as below. A process referred to as "Proxy" monitors the digital video and an archiving process records the video that is being monitored by the proxy. The archived video is available via URL to other systems on the network.



APPENDIX B (VIDEO INTERFACES)

B.1 INPUTS

B.1.1 ANALOG VIDEO

The VADS is designed to accept NTSC analog video directly from a video source. The VADS includes multiple analog video input ports to accept analog video over coaxial cables with BNC connectors.

B.1.1 DIGITAL VIDEO

The VADS can also accept video input from digital video encoders. Standalone digital encoders must be compatible with pre-existing encoders already hooked up to the VADS - all of the connected encoders must be of the same type. Typically the VADS is fielded with an array of Axis 2401 Plus encoders programmed to generate data encoded at 1CIF (352x240pixels) at 30 frames per second.

To connect a stand-alone encoder to the VADS, the encoder must reside on the same LAN as the VADS. Also, the IP addresses of the connected encoders must follow that of the VADS. For example, if the IP address of the VADS is 192.168.1.200 and there are 2 encoders connected, then the IP addresses of the encoders must be 192.168.1.201 and 192.168.1.202.

B.2 OUTPUTS

VADS video is available via URL (http request). The associated web page includes a player and a suite of typical video controls (rewind/pause/play).

The VADS is also capable of exporting video clips in .AVI format.

APPENDIX C (SERIAL INTERFACES)

The eTASS Annunciator supports serial interfaces for sensor, radio, and camera interface. Detailed descriptions of these interfaces are provided in the referenced documents.

ICD-TASS-001 interface protocol defines the process of sending and receiving messages to control functions or features over a data link that supports an EIA-232, EIA-422, or EIA-485 electrical interface at each end of the link.

SEIWG-005A defines the protocol by which TASS and REMBASS messages are transmitted over UHF/VHF links. The eTASS annunciator communicates with TASS sensors via this protocol

Pelco "D" Protocol defines the process of communicating between a controlling device and a camera.

Qualtron communicates with the eTASS via EMIDS and MIDS messages.

Thales MBITR Control Protocol defines the serial commands and status exchanged over the 18-pin side connector PC interface of the Multiband Inter/Intra Team Radio (MBITR).

NMEA is a standard protocol, use by GPS receivers to transmit data. NMEA output for most purposes can be considered RS-232 compatible. eTASS Annunciator communicates with GPS receivers and Thales 25 radios via this protocol.

The Command Console Language is used to control functions of an Allegiant series switching/controller system through the use of its integral RS-232C port.