



esoc

European Space Operations Centre
Robert-Bosch-Strasse 5
D-64293 Darmstadt
Germany
T +49 (0)6151 900
F +49 (0)6151 90495
www.esa.int

DOCUMENT

Generic ESTRACK XML Pass and Failure Report ICD

Prepared by Elias Taylor
Reference ESTK-MGT-ICD-1001-OPS-ONO
Issue 1
Revision 2
Date of Issue 16/07/2020
Status Approved
Document Type IF - Interface Requirement / Specification / Interface Control Document / EID

European Space Agency
Agence spatiale européenne

Distribution H/OPS-ON, H/OPS-ONI/ONO/ONX, all GOMs and GOEs in OPS-ON



APPROVAL

Title Generic XML Pass and Failure Report ICD for ESTRACK Service Providers	
Issue 1	Revision 2
Author Elias Taylor	Date 16/07/2020
Approved by	Date
E. Taylor	

CHANGE LOG

Reason for change	Issue	Revision	Date
First Issue	1	0	11/10/2012
Document XML ICD v1.1	1	1	15/10/2014
Added failure reports	1	2	16/07/2020

CHANGE RECORD

Issue 1	Revision 1		
Reason for change	Date	Pages	Paragraph(s)
PassSuccessful and PassCharged are now optional, with default set to 'true'	15/10/2014		3.3, 4.1 Figure 2

Issue 1	Revision 2		
Reason for change	Date	Pages	Paragraph(s)
Updated ICD to include failure reports as well as pass reports	16/07/2020		3.1, 3.2, 3.3, 3.4, 3.5, 4.3, 4.4 Table 3, Table 4 Figure 7, Figure 8, Figure 9, Figure 10, Figure 11, Figure 12



Table of contents:

1 INTRODUCTION..... 4

2 DEFINITIONS..... 4

2.1 Compositors4

2.2 Components4

3 INTERFACE SPECIFICATION FOR XML REPORT 5

3.1 Interface Specification for XML Pass Report.....5

3.1.1 Schema View5

3.1.2 Element Data Types.....8

3.1.3 Element Description8

3.2 Interface Specification for XML Failure Report10

3.2.1 Schema View10

3.2.2 Element Data Types.....13

3.2.3 Element Description13

3.3 Filename convention.....15

3.4 File Transfer to ESA15

3.5 File Transfer from ESA15

4 EXAMPLE XML FILES16

4.1 XML Minimum Pass Report Example16

4.2 XML Full Pass Report Example17

4.3 XML Minimum Failure Report Example18

4.4 XML Non-Internal Failure Report Example.....19

4.5 XML Full Failure Report Example20

Appendix A XSD Source Code21

Generic_XML_Pass_Report_ICD_i1r1.xsd21

Generic_XML_Failure_Report_ICD_i1r1.xsd27

Table 1 - Pass Report Element Data Types8

Table 2 - Pass Report Element Description.....9

Table 3 - Failure Report Element Data Types13

Table 4 - Failure Report Element Description14

Figure 1 - XML Pass Report Schema Overview5

Figure 2 - XML Pass Report Schema View Details6

Figure 3 - XML Pass Report Schema View <<Support>>7

Figure 4 - XML Pass Report Schema View <<Track>>7

Figure 5 - XML Pass Report Schema View <<Uplink>>7

Figure 6 - XML Pass Report Schema View <<ReportDetails>>7

Figure 7 - XML Failure Report Schema Overview10

Figure 8 - XML Failure Report Schema View Details.....11

Figure 9 - XML Failure Report Schema View <<Failure>>12

Figure 10 - XML Failure Report Schema View <<AffectedService>>12

Figure 11 - XML Failure Report Schema View <<Affected>>12

Figure 12 - XML Failure Report Schema View <<Incident>>12

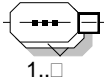
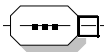
1 INTRODUCTION

This document describes the pass and failure report format to be exchanged between ESTRACK Service Providers and ESTRACK. The format is XML and is validated by a schema.





2 DEFINITIONS

The following XSD schema definitions are used within this ICD:

2.1 Compositors

Item	Description
 1..□	Sequence of elements 1 or many
	Sequence of elements (single instance)

2.2 Components

Item	Description
	Straight Line border for mandatory elements
	Dotted Line border for optional elements
	Plus sign for complex element, i.e. that is made of other elements
	Model group

3 INTERFACE SPECIFICATION FOR XML REPORT

3.1 Interface Specification for XML Pass Report

The XML generation of the pass reports has to be validated against the XSD file attached to this ICD. The Generic_XML_PassReport_ICD_i1r1.xsd file shall be taken as the applicable interface definition. The following paragraphs only document the content of this file.

3.1.1 Schema View

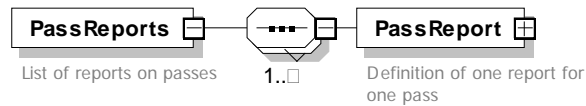


Figure 1 - XML Pass Report Schema Overview

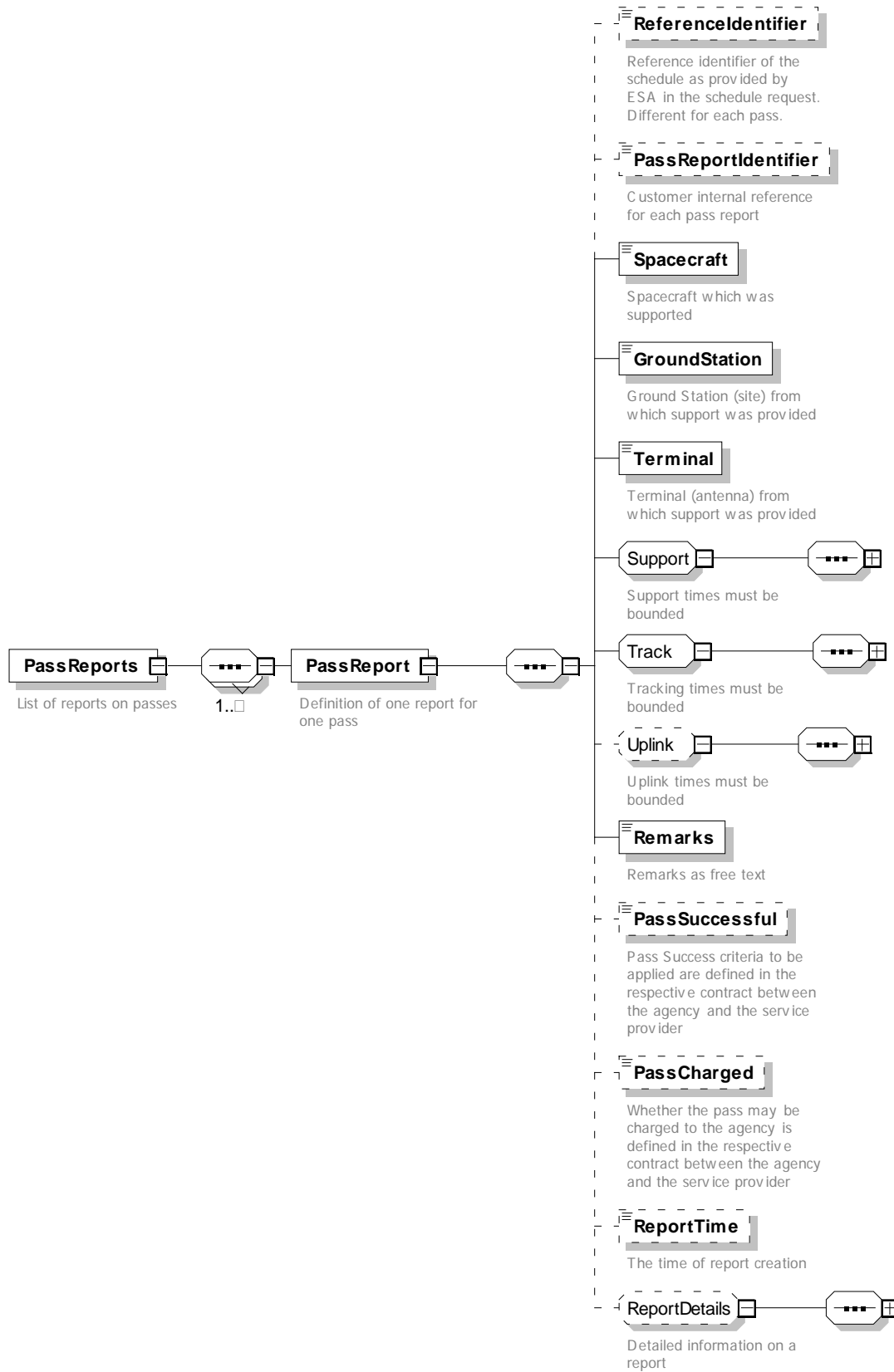


Figure 2 - XML Pass Report Schema View Details

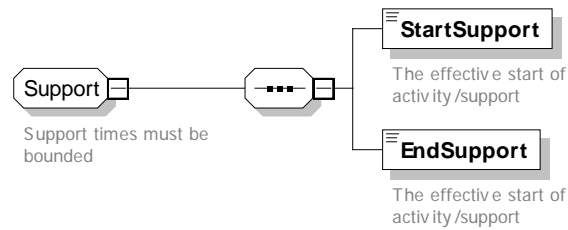


Figure 3 - XML Pass Report Schema View <<Support>>

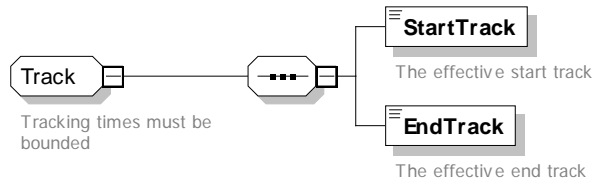


Figure 4 - XML Pass Report Schema View <<Track>>

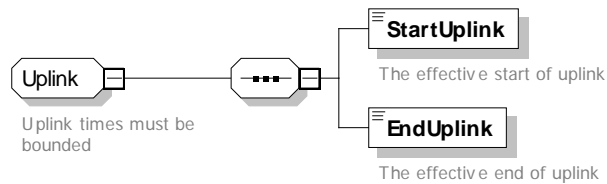


Figure 5 - XML Pass Report Schema View <<Uplink>>

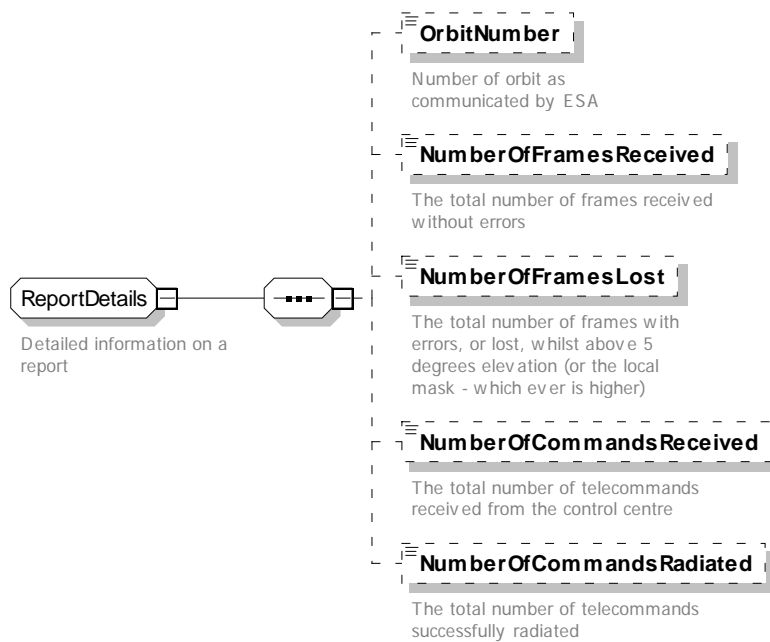


Figure 6 - XML Pass Report Schema View <<ReportDetails>>



3.1.2 Element Data Types

The following table documents the data types that are defined for pass reports in this ICD.

ELEMENT	DATA TYPE
ReferenceIdentifier	xs:string
PassReportIdentifier	xs:string
Spacecraft	xs:string, enumerated
GroundStation	xs:string, enumerated
Terminal	xs:string, enumerated
StartSupport	xs:dateTime
StartTrack	xs:dateTime
StartUplink	xs:dateTime
EndUplink	xs:dateTime
EndTrack	xs:dateTime
EndSupport	xs:dateTime
Remarks	xs:string
PassSuccessful	xs:boolean
PassCharged	xs:boolean
ReportTime	xs:dateTime
OrbitNumber	xs:unsignedLong
NumberOfFramesReceived	xs:unsignedLong
NumberOfFramesLost	xs:unsignedLong
NumberOfCommandsReceived	xs:unsignedLong
NumberOfCommandsRadiated	xs:unsignedLong

Table 1 - Pass Report Element Data Types

3.1.3 Element Description

ORIGINATOR	CUSTOMER NAME	REQUIRED
ReferenceIdentifier	Reference identifier of the schedule as provided by ESA in the schedule request. Different for each pass.	Optional
PassReportIdentifier	Customer internal reference for each pass report	Optional
Spacecraft	Spacecraft which was supported	Mandatory: See applicable support ICD between the Agency and the Service Provider
GroundStation	Ground Station (site) from which support was provided	Mandatory: See applicable support ICD between the Agency and the Service Provider



ORIGINATOR	CUSTOMER NAME	REQUIRED
Terminal	Terminal (antenna) from which support was provided	Mandatory: See applicable support ICD between the Agency and the Service Provider
StartSupport	Date and time (UTC) of the effective start of the activity/support	Mandatory: yyyy-mm-ddThh:mm:ssZ Actual start support time
StartTrack	Date and time (UTC) of the effective start track of the pass	Mandatory: yyyy-mm-ddThh:mm:ssZ Actual start track time
StartUplink	Date and time (UTC) of the effective start of uplink	Optional: yyyy-mm-ddThh:mm:ssZ Actual start uplink time
EndUplink	Date and time (UTC) of the effective end of uplink	Optional: yyyy-mm-ddThh:mm:ssZ Actual end uplink time
EndTrack	Date and time (UTC) of the effective end track of the pass	Mandatory: yyyy-mm-ddThh:mm:ssZ Actual end track time
EndSupport	Date and time (UTC) of the effective end of the activity/support	Mandatory: yyyy-mm-ddThh:mm:ssZ Actual end support time
PassSuccessful	Pass Success criteria to be applied are defined in the respective contract between the agency and the service provider	Optional: True (default) or False
PassCharged	Whether the pass may be charged to the agency is defined in the respective contract between the agency and the service provider	Optional: True (default) or False
ReportTime	File creation time	Mandatory: yyyy-mm-ddThh:mm:ssZ Time of file generation
OrbitNumber	Orbit number	Optional
NumberOfFramesReceived	Number of frames received	Optional
NumberOfFramesLost	Number of frames lost	Optional
NumberOfCommandsReceived	Number of commands received	Optional
NumberOfCommandsRadiated	Number of frames radiated	Optional

Table 2 - Pass Report Element Description

3.2 Interface Specification for XML Failure Report

The XML generation of the failure reports has to be validated against the XSD file attached to this ICD. The Generic_XML_FailureReport_ICD_1lr1.xsd file shall be taken as the applicable interface definition. The following paragraphs only document the content of this file.

3.2.1 Schema View

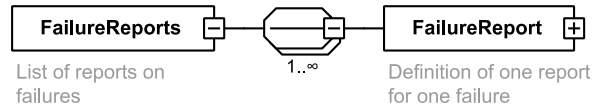


Figure 7 - XML Failure Report Schema Overview

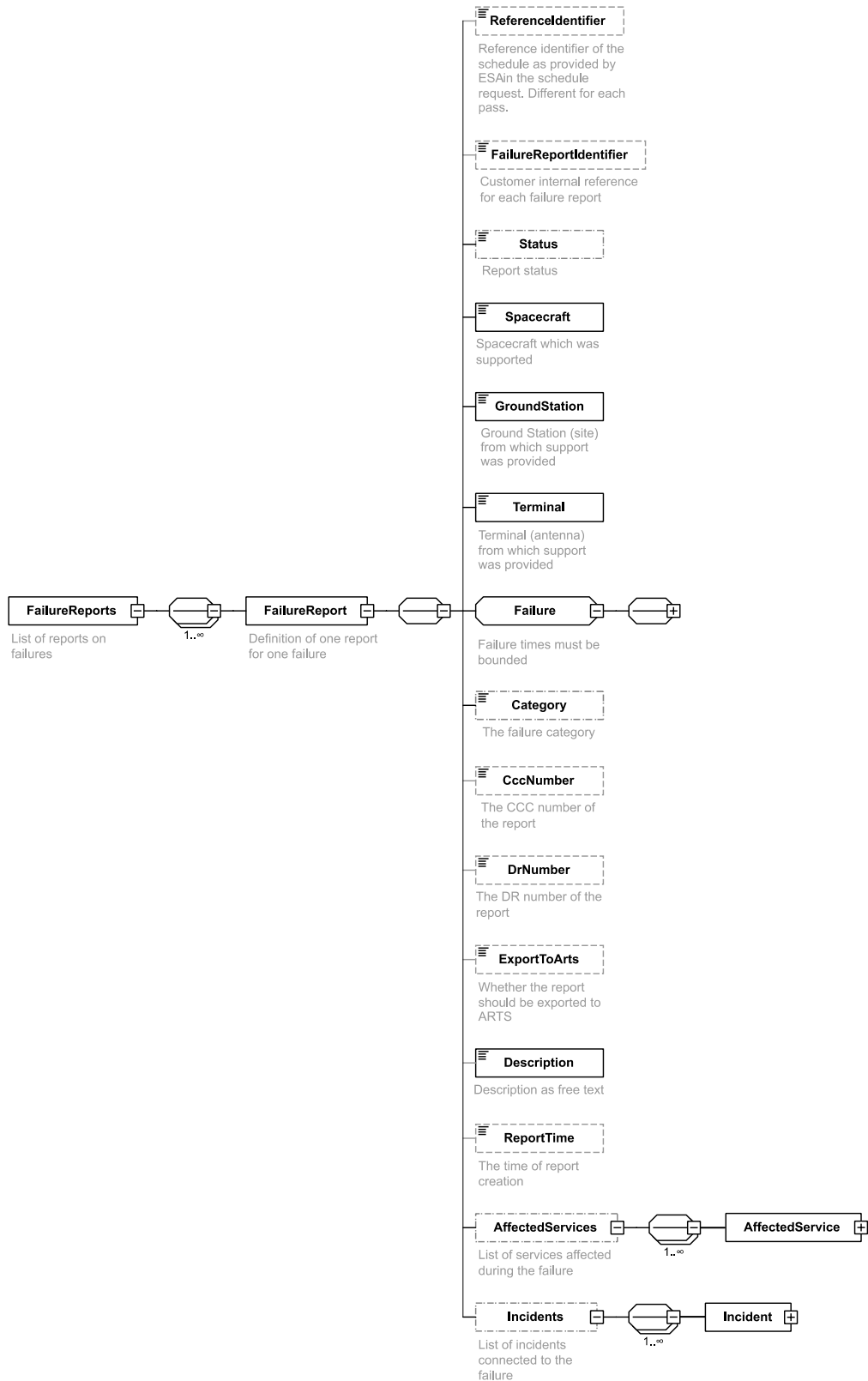


Figure 8 - XML Failure Report Schema View Details

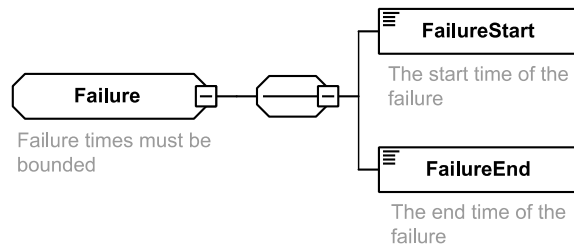


Figure 9 - XML Failure Report Schema View <<Failure>>

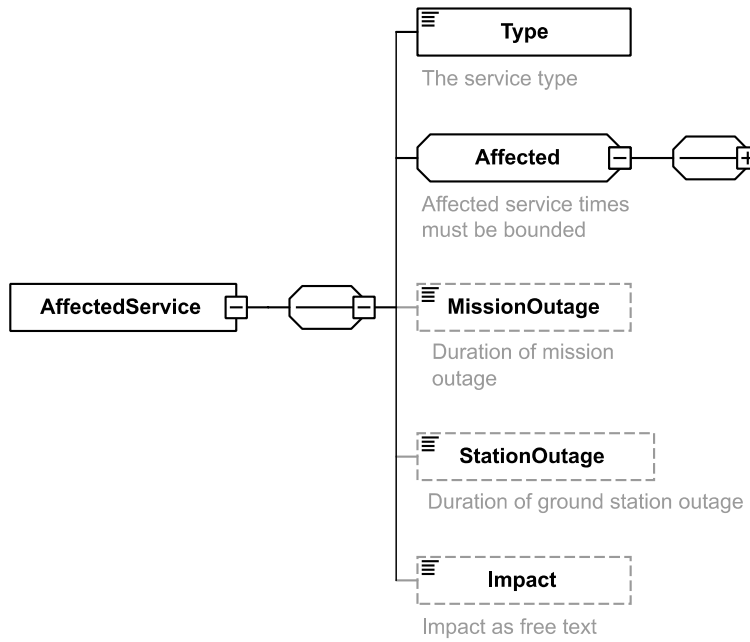


Figure 10 - XML Failure Report Schema View <<AffectedService>>

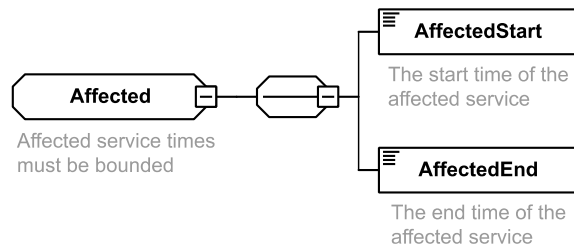


Figure 11 - XML Failure Report Schema View <<Affected>>

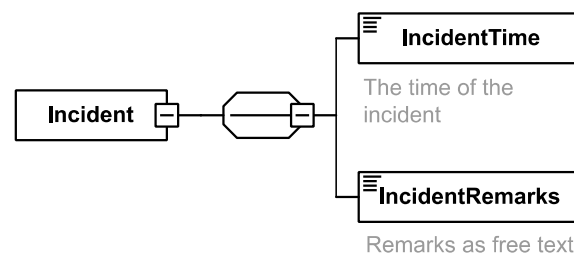


Figure 12 - XML Failure Report Schema View <<Incident>>



3.2.2 Element Data Types

The following table documents the data types that are defined for failure reports in this ICD.

ELEMENT	DATA TYPE
ReferenceIdentifier	xs:string
FailureReportIdentifier	xs:string
Status	xs:string, enumerated
Spacecraft	xs:string, enumerated
GroundStation	xs:string, enumerated
Terminal	xs:string, enumerated
FailureStart	xs:dateTime
FailureEnd	xs:dateTime
Category	xs:string, enumerated
CccNumber	xs:string
DrNumber	xs:string
ExportToArts	xs:boolean
Description	xs:string
ReportTime	xs:dateTime
Type	xs:string, enumerated
AffectedStart	xs:dateTime
AffectedEnd	xs:dateTime
MissionOutage	xs:time
StationOutage	xs:time
Impact	xs:string
IncidentTime	xs:dateTime
IncidentRemarks	xs:string

Table 3 - Failure Report Element Data Types

3.2.3 Element Description

The following table provides a more detailed description for each element. Elements can be mandatory, optional or internal. **INTERNAL** elements are optional and shall be disregarded by external entities.

ORIGINATOR	CUSTOMER NAME	REQUIRED
ReferenceIdentifier	Reference identifier of the schedule as provided by ESA in the schedule request. Different for each pass.	Optional
FailureReportIdentifier	Customer internal reference for each pass report	Optional
<i>Status</i>	<i>Status of the failure report</i>	INTERNAL



ORIGINATOR	CUSTOMER NAME	REQUIRED
Spacecraft	Spacecraft which was supported	Mandatory: See applicable support ICD between the Agency and the Service Provider
GroundStation	Ground Station (site) from which support was provided	Mandatory: See applicable support ICD between the Agency and the Service Provider
Terminal	Terminal (antenna) from which support was provided	Mandatory: See applicable support ICD between the Agency and the Service Provider
FailureStart	Date and time (UTC) of the start of the failure	Mandatory: yyyy-mm-ddThh:mm:ssZ Actual failure start time
FailureEnd	Date and time (UTC) of the end of the failure	Mandatory: yyyy-mm-ddThh:mm:ssZ Actual failure end time
Category	Failure category	INTERNAL
CccNumber	CCC number	INTERNAL
DrNumber	DR number	INTERNAL
ExportToArts	Whether the report should be exported to ARTS	INTERNAL
Description	Description of the failure	Mandatory
ReportTime	File creation time	Mandatory: yyyy-mm-ddThh:mm:ssZ Time of file generation
Type	The affected service type	INTERNAL
AffectedStart	Date and time (UTC) the service started to be affected	INTERNAL: yyyy-mm-ddThh:mm:ssZ Actual affected start time
AffectedEnd	Date and time (UTC) the service finished being affected	INTERNAL: yyyy-mm-ddThh:mm:ssZ Actual affected end time
MissionOutage	Duration of the mission outage	INTERNAL
StationOutage	Duration of the groundstation outage	INTERNAL
Impact	Impact of the affected service	INTERNAL
IncidentTime	Date and time (UTC) of the incident	INTERNAL yyyy-mm-ddThh:mm:ssZ Actual incident time
IncidentRemarks	Description of the incident	INTERNAL

Table 4 - Failure Report Element Description



3.3 Filename convention

The filename convention to use for Pass and Failure Reports is the following:

Pass reports: <senderID>_PassReports_<generation_time>.xml
 Failure reports: <senderID>_FailureReports_<generation_time>.xml

Where <senderID> is the name of the service provider (e.g. KSAT, SSC, etc.) and <ReportTime> is the time of file generation in the format *yyyymmddhhmmss* (e.g. "20120216082400"), i.e. without any underscore, hyphen, semi-colon and ending Z, while T remains in front of the time.

Example: *KSAT_PassReports_20120216082400.xml*
 SSC_FailureReports_20200625054500.xml

3.4 File Transfer to ESA

The pass and failure report xml files shall be validated against the provided XSD and transferred to the ESA relay-LAN machines using secure FTP within 60 minutes of the end of support.

The user account to be used is defined the corresponding support ICD between the Agency and the Service Provider. The reports shall be delivered to the "/reports" directory.

The FTP targets are the following:

- | | | |
|--------------|---------------------------|----------------|
| 1. Primary | flsdrel1.esoc.ops.esa.int | 195.74.163.109 |
| 2. Secondary | flshrel1.esoc.ops.esa.int | 195.74.163.110 |

3.5 File Transfer from ESA

The pass and failure report xml files shall be generated by ESTRACK, validated against the specified XSD and transferred as defined in the corresponding support ICD.

4 EXAMPLE XML FILES

4.1 XML Minimum Pass Report Example

The following example makes only use of the mandatory elements only:

```
<?xml version="1.0" encoding="UTF-8"?>
<PassReports xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <PassReport>
    <Spacecraft>GOCE</Spacecraft>
    <GroundStation>GroundStation</GroundStation>
    <Terminal>Terminal</Terminal>
    <StartSupport>2012-09-19T12:00:00Z</StartSupport>
    <EndSupport>2012-09-19T12:09:00Z</EndSupport>
    <StartTrack>2012-09-19T12:02:00Z</StartTrack>
    <EndTrack>2012-09-19T12:08:00Z</EndTrack>
    <Remarks>n/a</Remarks>
  </PassReport>
</PassReports>
```




4.2 XML Full Pass Report Example

The following example makes use of all the available elements and covers several passes:

```
<?xml version="1.0" encoding="UTF-8"?>
<PassReports xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <PassReport>
    <ReferenceIdentifier>112233445566</ReferenceIdentifier>
    <PassReportIdentifier>123456</PassReportIdentifier>
    <Spacecraft>GOCE</Spacecraft>
    <GroundStation>GroundStation</GroundStation>
    <Terminal>Terminal</Terminal>
    <StartSupport>2012-09-19T12:00:00Z</StartSupport>
    <EndSupport>2012-09-19T12:09:00Z</EndSupport>
    <StartTrack>2012-09-19T12:02:00Z</StartTrack>
    <EndTrack>2012-09-19T12:08:00Z</EndTrack>
    <StartUplink>2012-09-19T12:02:30Z</StartUplink>
    <EndUplink>2012-09-19T12:07:00Z</EndUplink>
    <Remarks>Remark</Remarks>
    <PassSuccessful>true</PassSuccessful>
    <PassCharged>true</PassCharged>
    <ReportTime>2012-09-19T14:09:00Z</ReportTime>
    <OrbitNumber>465015</OrbitNumber>
    <NumberOfFramesReceived>200</NumberOfFramesReceived>
    <NumberOfFramesLost>1</NumberOfFramesLost>
    <NumberOfCommandsReceived>200</NumberOfCommandsReceived>
    <NumberOfCommandsRadiated>199</NumberOfCommandsRadiated>
  </PassReport>
  <PassReport>
    <ReferenceIdentifier>445566778899</ReferenceIdentifier>
    <PassReportIdentifier>456789</PassReportIdentifier>
    <Spacecraft>CR2</Spacecraft>
    <GroundStation>GroundStation</GroundStation>
    <Terminal>Terminal</Terminal>
    <StartSupport>2012-09-19T14:10:00Z</StartSupport>
    <EndSupport>2012-09-19T14:19:00Z</EndSupport>
    <StartTrack>2012-09-19T14:12:00Z</StartTrack>
    <EndTrack>2012-09-19T14:18:00Z</EndTrack>
    <Remarks>Test Pass requested by Engineer</Remarks>
    <PassSuccessful>true</PassSuccessful>
    <PassCharged>true</PassCharged>
    <ReportTime>2012-09-19T15:09:00Z</ReportTime>
    <OrbitNumber>5483615</OrbitNumber>
    <NumberOfFramesReceived>200</NumberOfFramesReceived>
    <NumberOfFramesLost>0</NumberOfFramesLost>
    <NumberOfCommandsReceived>0</NumberOfCommandsReceived>
    <NumberOfCommandsRadiated>0</NumberOfCommandsRadiated>
  </PassReport>
</PassReports>
```



4.3 XML Minimum Failure Report Example

The following example makes only use of the mandatory elements only:

```
<?xml version="1.0" encoding="UTF-8"?>
<FailureReports xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <FailureReport>
    <Spacecraft>GOCE</Spacecraft>
    <GroundStation>GroundStation</GroundStation>
    <Terminal>Terminal</Terminal>
    <FailureStart>2020-06-25T13:13:00Z</FailureStart>
    <FailureEnd>2020-06-25T13:27:00Z</FailureEnd>
    <Description>Issue XYZ</Description>
  </FailureReport>
</FailureReports>
```



4.4 XML Non-Internal Failure Report Example

The following example makes use of all non-internal elements:

```
<?xml version="1.0" encoding="UTF-8"?>
<FailureReports xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <FailureReport>
    <ReferenceIdentifier>112233445566</ReferenceIdentifier>
    <FailureReportIdentifier>123456</FailureReportIdentifier>
    <Spacecraft>GOCE</Spacecraft>
    <GroundStation>GroundStation</GroundStation>
    <Terminal>Terminal</Terminal>
    <FailureStart>2020-06-25T13:13:00Z</FailureStart>
    <FailureEnd>2020-06-25T13:27:00Z</FailureEnd>
    <Description>Power outage</Description>
    <ReportTime>2020-06-25T13:33:12Z</ReportTime>
  </FailureReport>
</FailureReports>
```



4.5 XML Full Failure Report Example

The following example makes use of all the available elements and includes one affected service and one incident:

```
<?xml version="1.0" encoding="UTF-8"?>
<FailureReports xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <FailureReport>
    <ReferenceIdentifier>112233445566</ReferenceIdentifier>
    <FailureReportIdentifier>123456</FailureReportIdentifier>
    <Status>DRF</Status>
    <Spacecraft>GOCE</Spacecraft>
    <GroundStation>GroundStation</GroundStation>
    <Terminal>Terminal</Terminal>
    <FailureStart>2020-06-25T13:13:00Z</FailureStart>
    <FailureEnd>2020-06-25T13:27:00Z</FailureEnd>
    <Category>G/S - Back-End</Category>
    <CccNumber>198246</CccNumber>
    <DrNumber>97364915</DrNumber>
    <ExportToArts>>false</ExportToArts>
    <Description>Power outage</Description>
    <ReportTime>2020-06-25T13:33:12Z</ReportTime>
    <AffectedServices>
      <AffectedService>
        <Type>TLM</Type>
        <AffectedStart>2020-06-25T13:13:10Z</AffectedStart>
        <AffectedEnd>2020-06-25T13:20:52Z</AffectedEnd>
        <MissionOutage>00:03:23</MissionOutage>
        <StationOutage>00:04:12</StationOutage>
        <Impact>Data gaps reported</Impact>
      </AffectedService>
    </AffectedServices>
    <Incidents>
      <Incident>
        <IncidentTime>2020-06-25T13:13:10Z</IncidentTime>
        <IncidentRemarks>TLM lost, possible RFI.</IncidentRemarks>
      </Incident>
    </Incidents>
  </FailureReport>
</FailureReports>
```

APPENDIX A XSD SOURCE CODE

GENERIC_XML_PASS_REPORT_ICD_I1R1.XSD

```
<?xml version="1.0" encoding="UTF-8"?>
<!--
  Generic Pass Report schema
  Issue 1
  Revision 1
-->
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  elementFormDefault="qualified" attributeFormDefault="unqualified" version="1.1"
  xsi:noNamespaceSchemaLocation="Generic_Pass_Report_ICD.xsd">
  <xs:element name="PassReports">
    <xs:annotation>
      <xs:documentation>List of reports on passes</xs:documentation>
    </xs:annotation>
    <xs:complexType>
      <xs:sequence maxOccurs="unbounded">
        <xs:element name="PassReport">
          <xs:annotation>
            <xs:documentation>Definition of one report for one pass</xs:documentation>
          </xs:annotation>
          <xs:complexType>
            <xs:sequence>
              <xs:element name="ReferenceIdentifier" type="xs:string" minOccurs="0">
                <xs:annotation>
```



```

        <xs:documentation>Reference identifier of the schedule as provided by ESA in the schedule request.
Different for each pass.</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="PassReportIdentifier" type="xs:string" minOccurs="0">
    <xs:annotation>
        <xs:documentation>Customer internal reference for each pass report</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="Spacecraft" type="xs:string" nillable="false">
    <xs:annotation>
        <xs:documentation>Spacecraft which was supported</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="GroundStation" type="xs:string" nillable="false">
    <xs:annotation>
        <xs:documentation>Ground Station (site) from which support was provided</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="Terminal" type="xs:string" nillable="false">
    <xs:annotation>
        <xs:documentation>Terminal (antenna) from which support was provided</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:group ref="Support"/>
<xs:group ref="Track">
    <xs:annotation>
        <xs:documentation>Tracking times must be bounded</xs:documentation>

```



```

        </xs:annotation>
    </xs:group>
    <xs:group ref="Uplink" minOccurs="0"/>
    <xs:element name="Remarks" type="xs:string" nillable="false">
        <xs:annotation>
            <xs:documentation>Remarks as free text</xs:documentation>
        </xs:annotation>
    </xs:element>
    <xs:element name="PassSuccessful" type="xs:boolean" default="true" minOccurs="0">
        <xs:annotation>
            <xs:documentation>Pass Success criteria to be applied are defined in the respective contract
between the agency and the service provider</xs:documentation>
        </xs:annotation>
    </xs:element>
    <xs:element name="PassCharged" type="xs:boolean" default="true" minOccurs="0">
        <xs:annotation>
            <xs:documentation>Whether the pass may be charged to the agency is defined in the respective
contract between the agency and the service provider</xs:documentation>
        </xs:annotation>
    </xs:element>
    <xs:element name="ReportTime" type="xs:dateTime" minOccurs="0">
        <xs:annotation>
            <xs:documentation>The time of report creation</xs:documentation>
        </xs:annotation>
    </xs:element>
    <xs:group ref="ReportDetails" minOccurs="0"/>
</xs:sequence>
</xs:complexType>

```

```
        </xs:element>
    </xs:sequence>
</xs:complexType>
</xs:element>
<xs:group name="Support">
    <xs:annotation>
        <xs:documentation>Support times must be bounded</xs:documentation>
    </xs:annotation>
    <xs:sequence>
        <xs:element name="StartSupport" type="xs:dateTime" nillable="false">
            <xs:annotation>
                <xs:documentation>The effective start of activity/support</xs:documentation>
            </xs:annotation>
        </xs:element>
        <xs:element name="EndSupport" type="xs:dateTime" nillable="false">
            <xs:annotation>
                <xs:documentation>The effective start of activity/support</xs:documentation>
            </xs:annotation>
        </xs:element>
    </xs:sequence>
</xs:group>
<xs:group name="Track">
    <xs:annotation>
        <xs:documentation>Tracking times must be bounded</xs:documentation>
    </xs:annotation>
    <xs:sequence>
        <xs:element name="StartTrack" type="xs:dateTime" nillable="false">
            <xs:annotation>
```




```
        <xs:documentation>The effective start track</xs:documentation>
      </xs:annotation>
    </xs:element>
  <xs:element name="EndTrack" type="xs:dateTime" nillable="false">
    <xs:annotation>
      <xs:documentation>The effective end track</xs:documentation>
    </xs:annotation>
  </xs:element>
</xs:sequence>
</xs:group>
<xs:group name="Uplink">
  <xs:annotation>
    <xs:documentation>Uplink times must be bounded</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="StartUplink" type="xs:dateTime" nillable="false">
      <xs:annotation>
        <xs:documentation>The effective start of uplink</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="EndUplink" type="xs:dateTime" nillable="false">
      <xs:annotation>
        <xs:documentation>The effective end of uplink</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:group>
<xs:group name="ReportDetails">
```



```
<xs:annotation>
  <xs:documentation>Detailed information on a report</xs:documentation>
</xs:annotation>
<xs:sequence>
  <xs:element name="OrbitNumber" type="xs:unsignedLong" minOccurs="0">
    <xs:annotation>
      <xs:documentation>Number of orbit as communicated by ESA</xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:element name="NumberOfFramesReceived" type="xs:unsignedLong" minOccurs="0">
    <xs:annotation>
      <xs:documentation>The total number of frames received without errors</xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:element name="NumberOfFramesLost" type="xs:unsignedLong" minOccurs="0">
    <xs:annotation>
      <xs:documentation>The total number of frames with errors, or lost, whilst above 5 degrees elevation (or the local
mask - which ever is higher)</xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:element name="NumberOfCommandsReceived" type="xs:unsignedLong" minOccurs="0">
    <xs:annotation>
      <xs:documentation>The total number of telecommands received from the control centre</xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:element name="NumberOfCommandsRadiated" type="xs:unsignedLong" minOccurs="0">
    <xs:annotation>
      <xs:documentation>The total number of telecommands successfully radiated</xs:documentation>
    </xs:annotation>
  </xs:element>
</xs:sequence>
```



```

        </xs:annotation>
      </xs:element>
    </xs:sequence>
  </xs:group>
</xs:schema>

```

GENERIC_XML_FAILURE_REPORT_ICD_I1R1.XSD

```

<?xml version="1.0" encoding="UTF-8"?>
<!--
  Generic Failure Report schema
  Issue 1
  Revision 0
-->
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  elementFormDefault="qualified" attributeFormDefault="unqualified" version="1.0"
  xsi:noNamespaceSchemaLocation="Generic_Failure_Report_ICD.xsd">
  <xs:element name="FailureReports">
    <xs:annotation>
      <xs:documentation>List of reports on failures</xs:documentation>
    </xs:annotation>
    <xs:complexType>
      <xs:sequence maxOccurs="unbounded">
        <xs:element name="FailureReport">
          <xs:annotation>
            <xs:documentation>Definition of one report for one failure</xs:documentation>
          </xs:annotation>
          <xs:complexType>
            <xs:sequence>

```



```

<xs:element name="ReferenceIdentifier" type="xs:string" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Reference identifier of the schedule as provided by ESA in the schedule request.
Different for each pass.</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="FailureReportIdentifier" type="xs:string" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Customer internal reference for each failure report</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="Status" type="xs:string" nillable="false" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Report status</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="Spacecraft" type="xs:string" nillable="false">
  <xs:annotation>
    <xs:documentation>Spacecraft which was supported</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="GroundStation" type="xs:string" nillable="false">
  <xs:annotation>
    <xs:documentation>Ground Station (site) from which support was provided</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="Terminal" type="xs:string" nillable="false">
  <xs:annotation>

```



```
        <xs:documentation>Terminal (antenna) from which support was provided</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:group ref="Failure">
    <xs:annotation>
        <xs:documentation>Failure times must be bounded</xs:documentation>
    </xs:annotation>
</xs:group>
<xs:element name="Category" type="xs:string" nillable="false" minOccurs="0">
    <xs:annotation>
        <xs:documentation>The failure category</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="CccNumber" type="xs:string" minOccurs="0">
    <xs:annotation>
        <xs:documentation>The CCC number of the report</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="DrNumber" type="xs:string" minOccurs="0">
    <xs:annotation>
        <xs:documentation>The DR number of the report</xs:documentation>
    </xs:annotation>
</xs:element>
<xs:element name="ExportToArts" type="xs:boolean" minOccurs="0">
    <xs:annotation>
        <xs:documentation>Whether the report should be exported to ARTS</xs:documentation>
    </xs:annotation>
</xs:element>
```



```

<xs:element name="Description" type="xs:string" minOccurs="0">
  <xs:annotation>
    <xs:documentation>Description as free text</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="ReportTime" type="xs:dateTime" minOccurs="0">
  <xs:annotation>
    <xs:documentation>The time of report creation</xs:documentation>
  </xs:annotation>
</xs:element>
<xs:element name="AffectedServices" minOccurs="0">
  <xs:annotation>
    <xs:documentation>List of services affected during the failure</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence maxOccurs="unbounded">
      <xs:element name="AffectedService">
        <xs:element name="Type" type="xs:string" nillable="false">
          <xs:annotation>
            <xs:documentation>The service type</xs:documentation>
          </xs:annotation>
        </xs:element>
        <xs:group ref="Affected">
          <xs:annotation>
            <xs:documentation>Affected service times must be bounded</xs:documentation>
          </xs:annotation>
        </xs:group>
      </xs:element name="MissionOutage" type="xs:time" minOccurs="0">

```



```

        <xs:annotation>
          <xs:documentation>Duration of mission outage</xs:documentation>
        </xs:annotation>
      </xs:element>
    <xs:element name="StationOutage" type="xs:time" minOccurs="0">
      <xs:annotation>
        <xs:documentation>Duration of ground station outage</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="Impact" type="xs:string" minOccurs="0">
      <xs:annotation>
        <xs:documentation>Impact as free text</xs:documentation>
      </xs:annotation>
    </xs:element>
  </xs:sequence>
</xs:complexType>
</xs:element>
<xs:element name="Incidents" minOccurs="0">
  <xs:annotation>
    <xs:documentation>List of incidents connected to the failure</xs:documentation>
  </xs:annotation>
  <xs:complexType>
    <xs:sequence maxOccurs="unbounded">
      <xs:element name="Incident">
        <xs:element name="IncidentTime" type="xs:dateTime" nillable="false">
          <xs:annotation>
            <xs:documentation>The time of the incident</xs:documentation>
          </xs:annotation>
        </xs:element>
      </xs:element>
    </xs:sequence>
  </xs:complexType>
</xs:element>

```



```

        </xs:annotation>
      </xs:element>
      <xs:element name="IncidentRemarks" type="xs:string" nillable="false">
        <xs:annotation>
          <xs:documentation>Remarks as free text</xs:documentation>
        </xs:annotation>
      </xs:element>
    </xs:element>
  </xs:sequence>
</xs:complexType>
</xs:element>
</xs:sequence>
</xs:complexType>
</xs:element>
</xs:sequence>
</xs:complexType>
</xs:element>
<xs:group name="Failure">
  <xs:annotation>
    <xs:documentation>Failure times must be bounded</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="FailureStart" type="xs:dateTime" nillable="false">
      <xs:annotation>
        <xs:documentation>The start time of the failure</xs:documentation>
      </xs:annotation>
    </xs:element>
    <xs:element name="FailureEnd" type="xs:dateTime" nillable="false">

```




```
        <xs:annotation>
          <xs:documentation>The end time of the failure</xs:documentation>
        </xs:annotation>
      </xs:element>
    </xs:sequence>
  </xs:group>
  <xs:group name="Affected">
    <xs:annotation>
      <xs:documentation>Affected service times must be bounded</xs:documentation>
    </xs:annotation>
    <xs:sequence>
      <xs:element name="AffectedStart" type="xs:dateTime" nillable="false">
        <xs:annotation>
          <xs:documentation>The start time of the affected service</xs:documentation>
        </xs:annotation>
      </xs:element>
      <xs:element name="AffectedEnd" type="xs:dateTime" nillable="false">
        <xs:annotation>
          <xs:documentation>The end time of the affected service</xs:documentation>
        </xs:annotation>
      </xs:element>
    </xs:sequence>
  </xs:group>
</xs:schema>
```