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*Technical Specification*

**Universal Mobile Telecommunications System (UMTS);  
LTE;  
Telecommunication management;  
Software management Integration Reference Point (IRP)  
(3GPP TS 32.535 version 9.0.0 Release 9)**

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Reference

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Keywords

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## Foreword

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The cross reference between GSM, UMTS, 3GPP and ETSI identities can be found under <http://webapp.etsi.org/key/queryform.asp>.

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## Foreword

This Technical Specification has been produced by the 3<sup>rd</sup> Generation Partnership Project (3GPP).

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Version x.y.z

where:

- x the first digit:
  - 1 presented to TSG for information;
  - 2 presented to TSG for approval;
  - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

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## Introduction

The present document is part of a TS-family covering the 3<sup>rd</sup> Generation Partnership Project: Technical Specification Group Services and System Aspects; Telecommunication management; as identified below:

32.531	Telecommunication management; Software management; Concepts and Integration Reference Point (IRP) Requirements
32.532	Telecommunication management; Software management Integration Reference Point (IRP); Information Service (IS)
32.533	Telecommunication management; Software management Integration Reference Point (IRP); Common Object Request Broker Architecture (CORBA) Solution Set (SS)
<b>32.535</b>	<b>Telecommunication management; Software management Integration Reference Point (IRP); eXtensible Markup Language (XML) definitions</b>

Software Management, in general, provides the operator with the ability to manage effectively the software entities residing in the 3G network. Software Management function is useful especially when there is a need to manage a large number of software residing in the managed elements widely distributed geographically. The main focus is the management of new software releases and correction patches [1].

The software management operations are initiated by the operator or by functions in the Operations Systems (OSs) either on single NE or across several NEs of the 3G network.

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# 1 Scope

The present document specifies the XML Definitions for the Software Management Integration Reference Point (IRP) as it applies to Itf-N, in accordance with Software Management IRP IS definitions [3] as well as Notification Log IRP XML Definitions [4].

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# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] 3GPP TS 32.101: “Telecommunication management; Principles and high level requirements”.
- [2] 3GPP TS 32.102: “Telecommunication management; Architecture”.
- [3] 3GPP TS 32.532: “Telecommunication management; Software management Integration Reference Point (IRP); Information Service (IS)”
- [4] 3GPP TS 32.335: “Telecommunication management; Notification Log (NL) Integration Reference Point (IRP): eXtensible Markup Language (XML) solution definitions”.
- [5] 3GPP TS 32.331: “Telecommunication management; Notification Log (NL) Integration Reference Point (IRP): Requirements”.

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# 3 Definitions and abbreviations

## 3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TS 32.101 [1], 3GPP TS 32.102 [2], and 3GPP TS 32.331 [5] apply.

## 3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

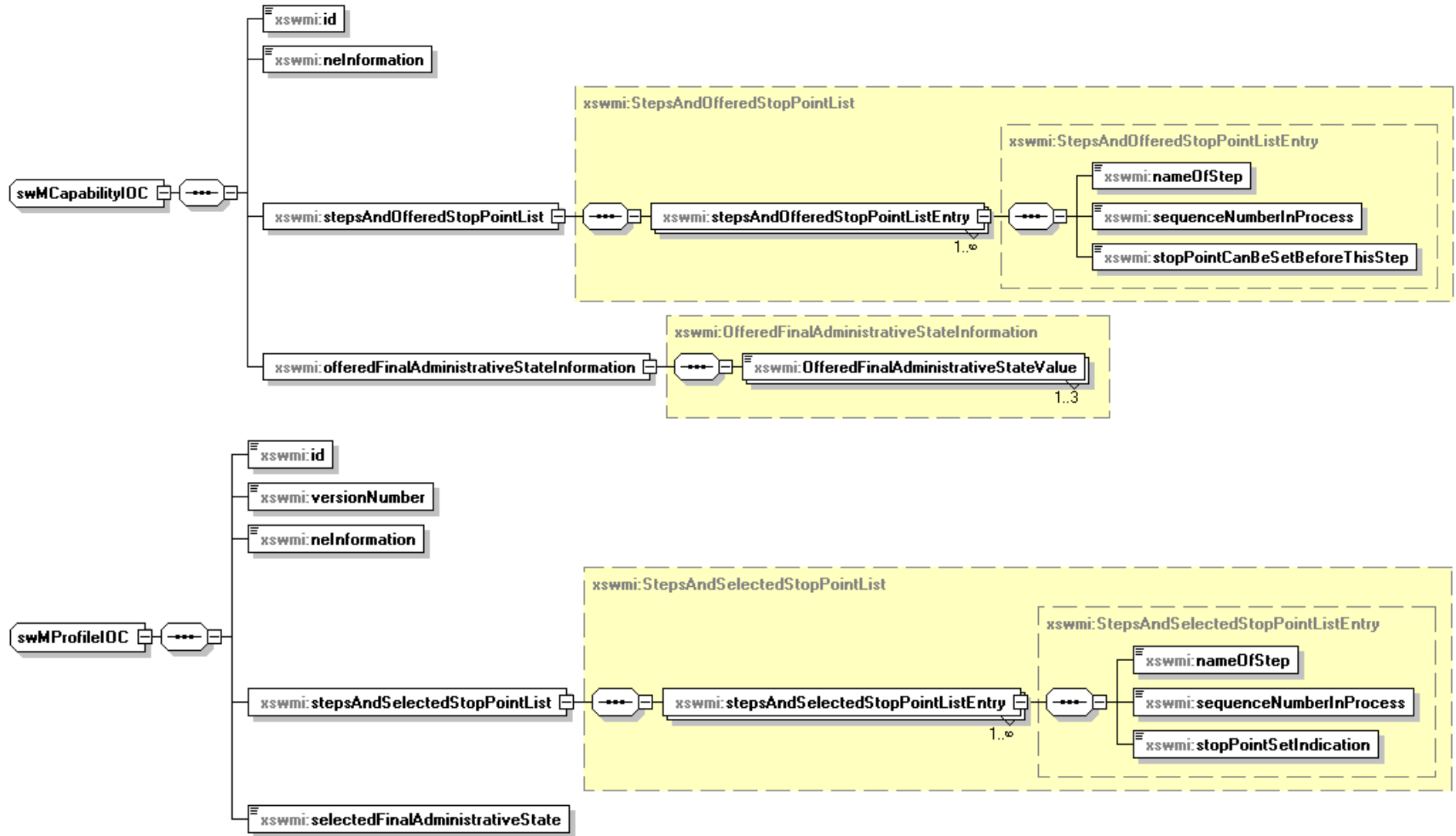
IRP	Integration Reference Point
IS	Information Service
NL	Notification Log
NRM	Network Resource Model
SwM	Software Management
UML	Unified Modelling Language
XML	eXtensible Markup Language

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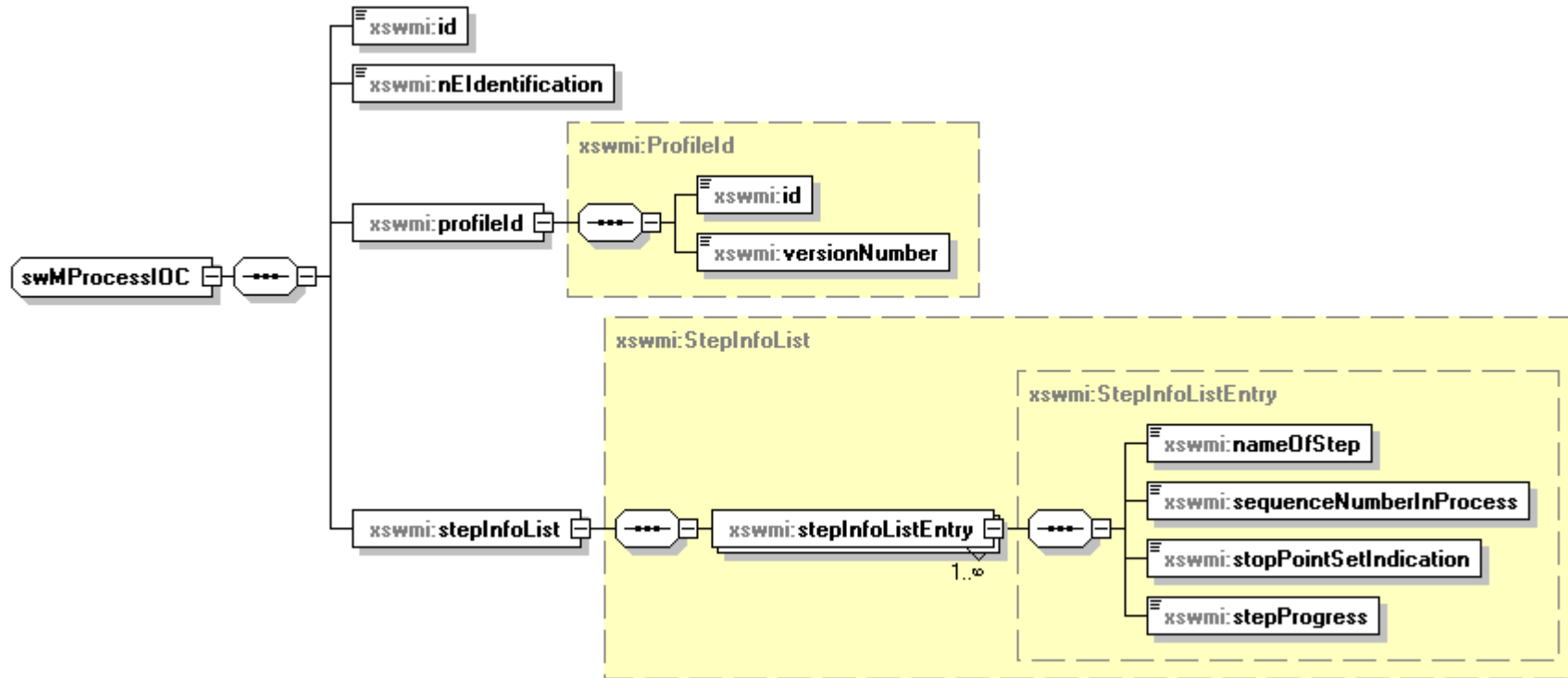
## 4 Software Management IRP XML Definitions

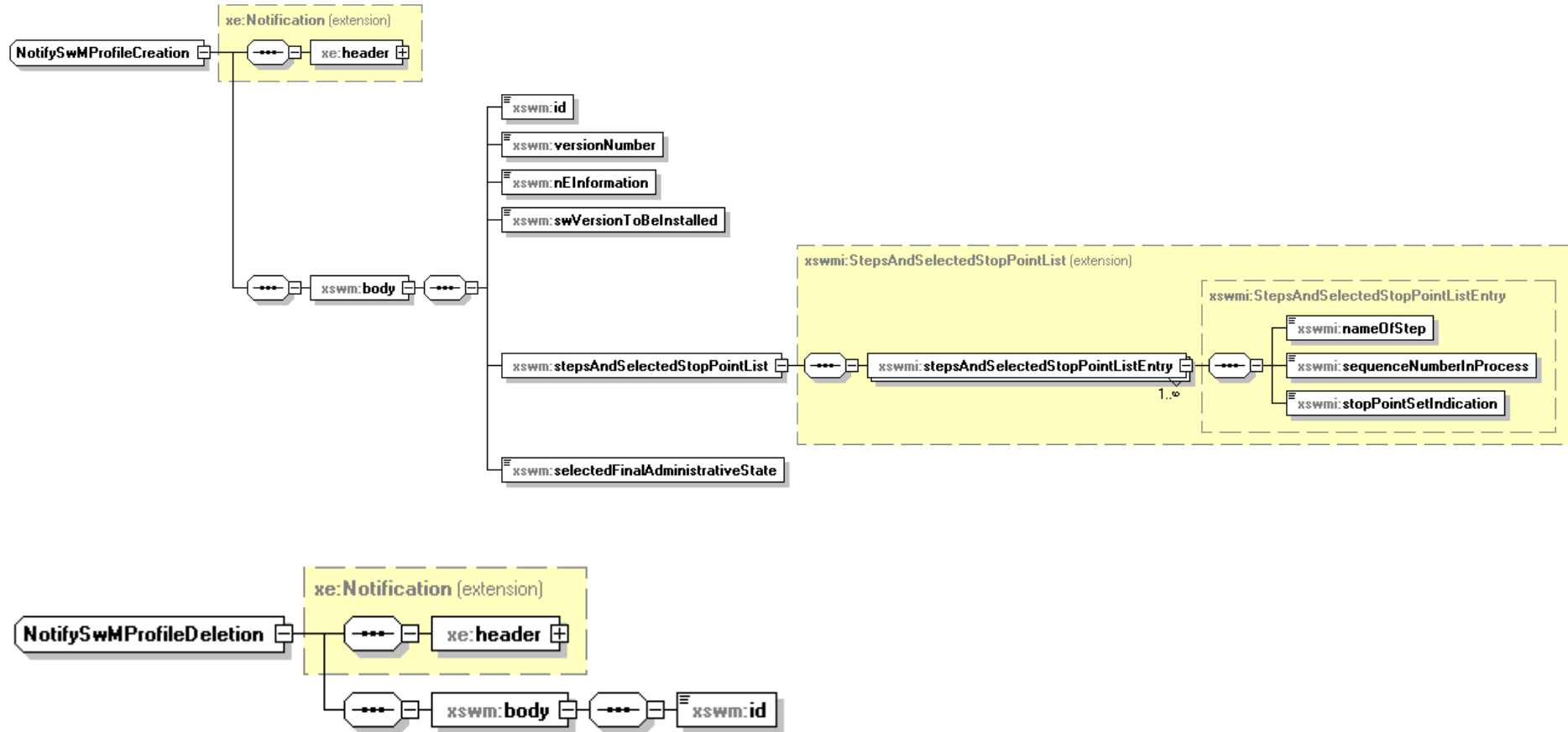
### 4.1 Software Management IRP XML Definitions

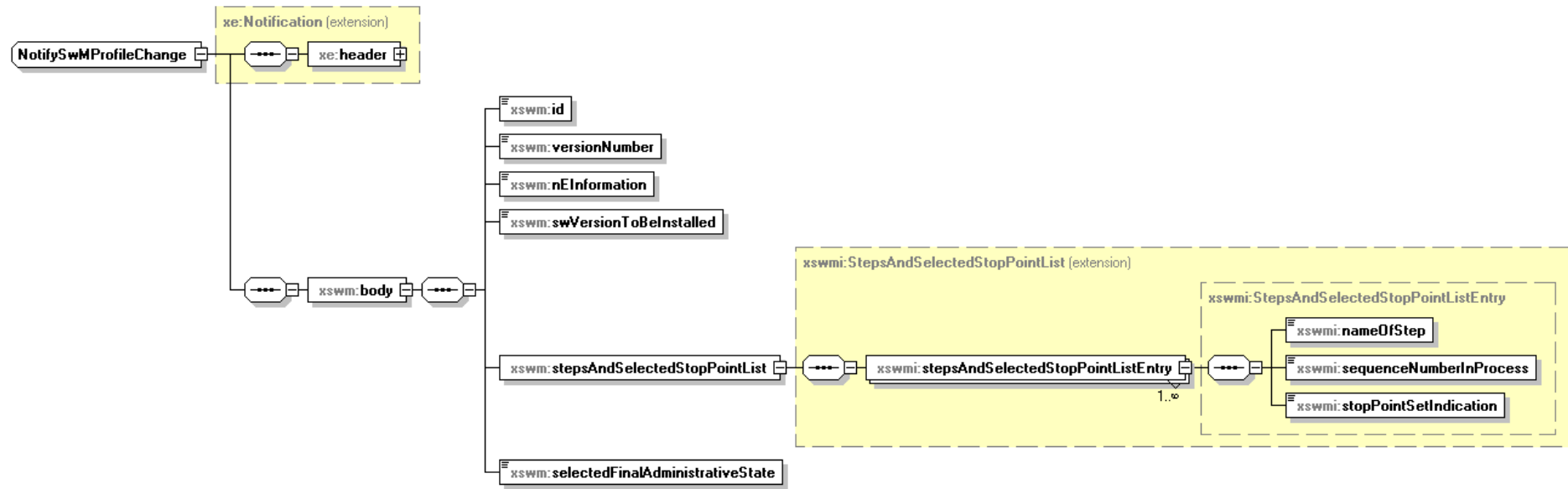
This section provides XML definitions of Software Management IRP IOCs and notifications as defined in [3].

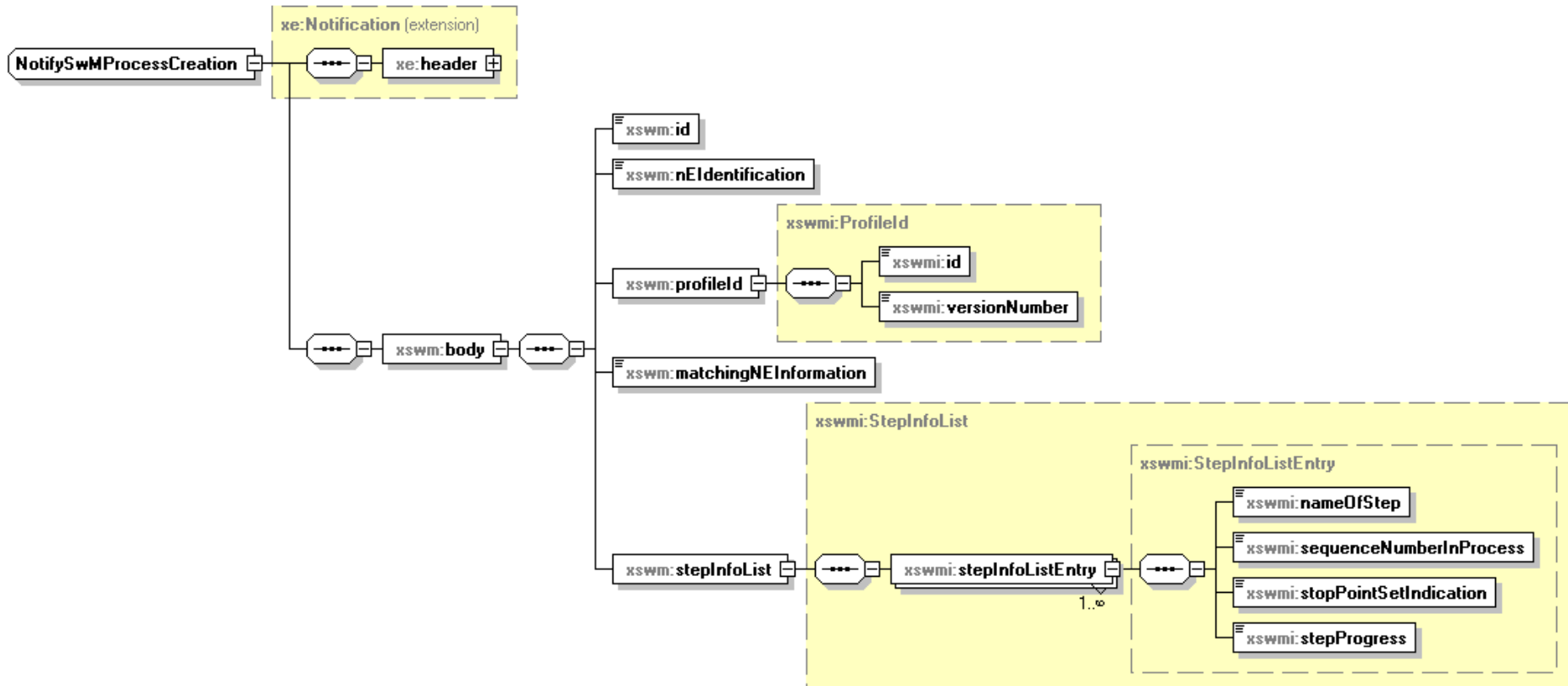


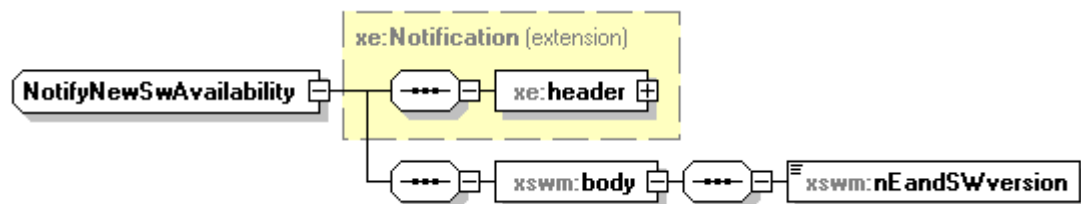
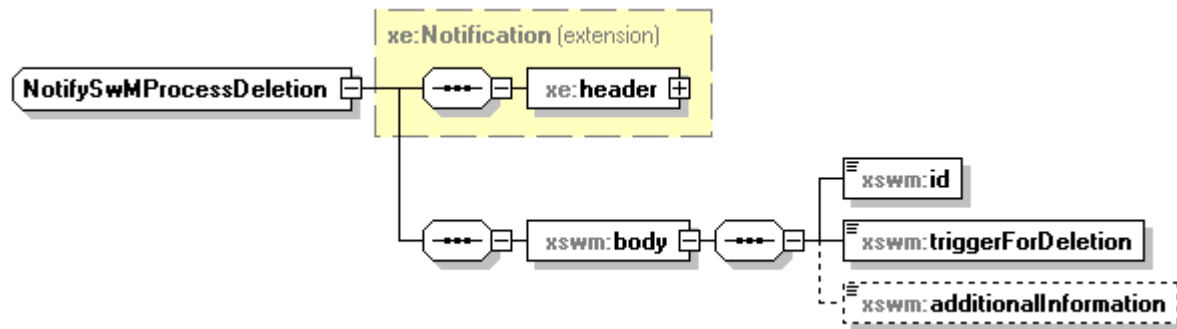
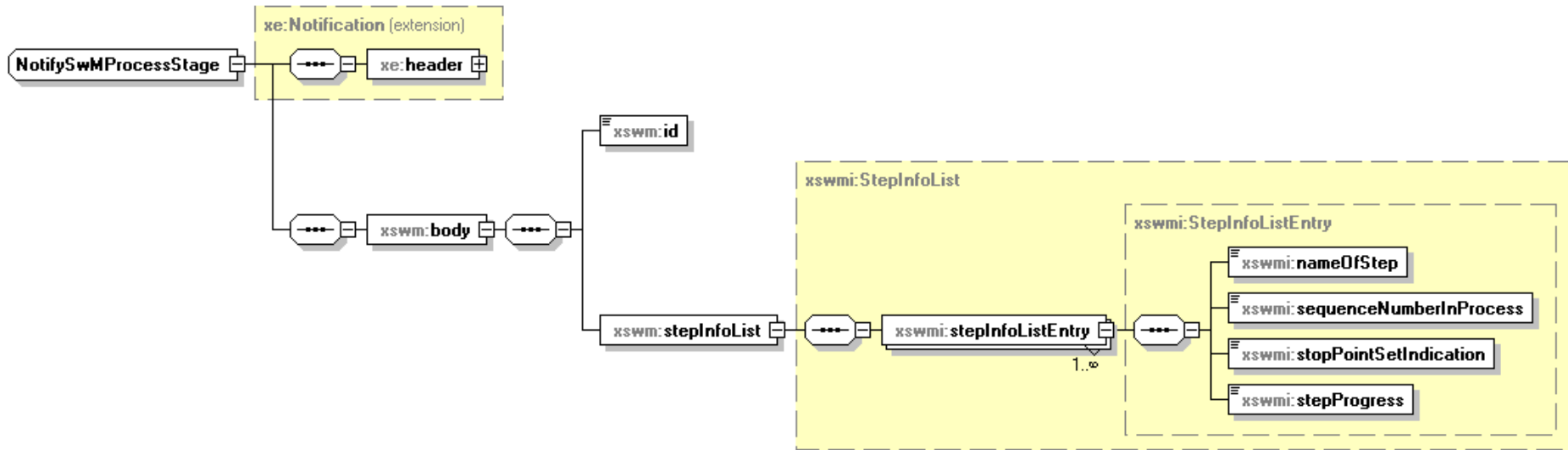












## 4.2 XML Schema for Software Management IRP Notifications (file name "swManagementIRPNotif.xsd")

```

<?xml version="1.0" encoding="UTF-8"?>
<schema xmlns="http://www.w3.org/2001/XMLSchema" xmlns:xe="http://www.3gpp.org/ftp/specs/archive/32_series/32.305#notification"
xmlns:xswm="http://www.3gpp.org/ftp/specs/archive/32_series/32.535#swManagementIRPNotif"
xmlns:xswmi="http://www.3gpp.org/ftp/specs/archive/32_series/32.535#swManagementIRPIOCs"
targetNamespace="http://www.3gpp.org/ftp/specs/archive/32_series/32.535#swManagementIRPNotif" elementFormDefault="qualified"
attributeFormDefault="unqualified">
  <import namespace="http://www.3gpp.org/ftp/specs/archive/32_series/32.305#notification"/>
  <import namespace="http://www.3gpp.org/ftp/specs/archive/32_series/32.535#swManagementIRPIOCs"/>
  <simpleType name="SwVersionToBeInstalledConditional">
    <restriction base="string"/>
  </simpleType>
  <complexType name="OfferedFinalAdministrativeStateInformation">
    <sequence>
      <element name="OfferedFinalAdministrativeStateValue" type="xswmi:FinalAdministrativeStateValue" maxOccurs="3"/>
    </sequence>
  </complexType>
  <simpleType name="TriggerForDeletion">
    <restriction base="string">
      <enumeration value="IRP_AGENT_TERMINATION"/>
      <enumeration value="IRP_MANAGER_TERMINATION"/>
      <enumeration value="AUTOMATED_SWM_SUCCESFULLY_CONCLUDED"/>
      <enumeration value="SELF_CONFIGURATION_SUCCESFULLY_CONCLUDED"/>
    </restriction>
  </simpleType>
  <complexType name="NotifySwMProfileChange">
    <complexContent>
      <extension base="xe:Notification">
        <sequence>
          <element name="body">
            <complexType>
              <sequence>
                <element name="id" type="xswmi:Id"/>
                <element name="versionNumber" type="xswmi:VersionNumber"/>
                <element name="nEInformation" type="xswmi:NEInformation"/>
                <element name="swVersionToBeInstalled" type="xswm:SwVersionToBeInstalledConditional"/>
                <element name="stepsAndSelectedStopPointList">
                  <complexType>
                    <complexContent>
                      <extension base="xswmi:StepsAndSelectedStopPointList"/>
                    </complexContent>
                  </complexType>
                </element>
                <element name="selectedFinalAdministrativeState" type="xswmi:FinalAdministrativeStateValue"/>
              </sequence>
            </complexType>
          </element>
        </sequence>
      </extension>
    </complexContent>
  </complexType>

```

```

    </complexContent>
  </complexType>
  <complexType name="NotifyNewSwAvailability">
    <complexContent>
      <extension base="xe:Notification">
        <sequence>
          <element name="body">
            <complexType>
              <sequence>
                <element name="nEandSWversion" type="string"/>
              </sequence>
            </complexType>
          </element>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
  <complexType name="NotifySwMProcessDeletion">
    <complexContent>
      <extension base="xe:Notification">
        <sequence>
          <element name="body">
            <complexType>
              <sequence>
                <element name="id" type="xswmi:Id"/>
                <element name="triggerForDeletion" type="xswm:TriggerForDeletion"/>
                <element name="additionalInformation" type="string" minOccurs="0"/>
              </sequence>
            </complexType>
          </element>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
  <complexType name="NotifySwMProcessStage">
    <complexContent>
      <extension base="xe:Notification">
        <sequence>
          <element name="body">
            <complexType>
              <sequence>
                <element name="id" type="xswmi:Id"/>
                <element name="stepInfoList" type="xswmi:StepInfoList"/>
              </sequence>
            </complexType>
          </element>
        </sequence>
      </extension>
    </complexContent>
  </complexType>
  <complexType name="NotifySwMProcessCreation">
    <complexContent>
      <extension base="xe:Notification">
        <sequence>

```

```

    <element name="body">
      <complexType>
        <sequence>
          <element name="id" type="xswmi:Id"/>
          <element name="nEIdentification" type="xswmi:Id"/>
          <element name="profileId" type="xswmi:ProfileId"/>
          <element name="matchingNEInformation" type="xswmi:NEInformation"/>
          <element name="stepInfoList" type="xswmi:StepInfoList"/>
        </sequence>
      </complexType>
    </element>
  </sequence>
</extension>
</complexContent>
</complexType>
<complexType name="NotifySwMProfileDeletion">
  <complexContent>
    <extension base="xe:Notification">
      <sequence>
        <element name="body">
          <complexType>
            <sequence>
              <element name="id" type="xswmi:Id"/>
            </sequence>
          </complexType>
        </element>
      </sequence>
    </extension>
  </complexContent>
</complexType>
<complexType name="NotifySwMProfileCreation">
  <complexContent>
    <extension base="xe:Notification">
      <sequence>
        <element name="body">
          <complexType>
            <sequence>
              <element name="id" type="xswmi:Id"/>
              <element name="versionNumber" type="xswmi:VersionNumber"/>
              <element name="nEInformation" type="xswmi:NEInformation"/>
              <element name="swVersionToBeInstalled" type="xswm:SwVersionToBeInstalledConditional"/>
              <element name="stepsAndSelectedStopPointList">
                <complexType>
                  <complexContent>
                    <extension base="xswmi:StepsAndSelectedStopPointList"/>
                  </complexContent>
                </complexType>
              </element>
              <element name="selectedFinalAdministrativeState" type="xswmi:FinalAdministrativeStateValue"/>
            </sequence>
          </complexType>
        </element>
      </sequence>
    </extension>
  </complexContent>
</complexType>

```



```
</complexContent>
</complexType>
<element name="NotifySwMProfileCreation" type="xswm:NotifySwMProfileCreation"/>
<element name="NotifySwMProfileDeletion" type="xswm:NotifySwMProfileDeletion"/>
<element name="NotifySwMProcessCreation" type="xswm:NotifySwMProcessCreation"/>
<element name="NotifySwMProcessStage" type="xswm:NotifySwMProcessStage"/>
<element name="NotifySwMProcessDeletion" type="xswm:NotifySwMProcessDeletion"/>
<element name="NotifyNewSwAvailability" type="xswm:NotifyNewSwAvailability"/>
<element name="NotifySwMProfileChange" type="xswm:NotifySwMProfileChange"/>
</schema>
```

## 4.3 XML Schema for Software Management IRP IOCs (file name "swManagementIRPIOCs.xsd")

```

<?xml version="1.0" encoding="UTF-8"?>
<schema xmlns="http://www.w3.org/2001/XMLSchema" xmlns:xswmi="http://www.3gpp.org/ftp/specs/archive/32_series/32.535#swManagementIRPIOCs"
xmlns:xn="http://www.3gpp.org/ftp/specs/archive/32_series/32.625#genericNrm"
targetNamespace="http://www.3gpp.org/ftp/specs/archive/32_series/32.535#swManagementIRPIOCs" elementFormDefault="qualified"
attributeFormDefault="unqualified">
  <import namespace="http://www.3gpp.org/ftp/specs/archive/32_series/32.625#genericNrm" schemaLocation="genericNrm.xsd"/>
  <simpleType name="NEInformation">
    <restriction base="string"/>
  </simpleType>
  <simpleType name="Id">
    <restriction base="xn:dn"/>
  </simpleType>
  <simpleType name="VersionNumber">
    <restriction base="unsignedShort"/>
  </simpleType>
  <complexType name="ProfileId">
    <sequence>
      <element name="id" type="xswmi:Id"/>
      <element name="versionNumber" type="xswmi:VersionNumber"/>
    </sequence>
  </complexType>
  <simpleType name="FinalAdministrativeStateValue">
    <restriction base="string">
      <enumeration value="LOCKED"/>
      <enumeration value="UNLOCKED"/>
      <enumeration value="DETERMINED_BY_CONFIGURATION_DATA"/>
    </restriction>
  </simpleType>
  <complexType name="OfferedFinalAdministrativeStateInformation">
    <sequence>
      <element name="OfferedFinalAdministrativeStateValue" type="xswmi:FinalAdministrativeStateValue" maxOccurs="3"/>
    </sequence>
  </complexType>
  <complexType name="StepsAndOfferedStopPointListEntry">
    <sequence>
      <element name="nameOfStep" type="xswmi:NameOfStep"/>
      <element name="sequenceNumberInProgress" type="xswmi:SequenceNumberInProgress"/>
      <element name="stopPointCanBeSetBeforeThisStep" type="xswmi:StopPointCanBeSetBeforeThisStep"/>
    </sequence>
  </complexType>
  <complexType name="StepsAndOfferedStopPointList">
    <sequence>
      <element name="stepsAndOfferedStopPointListEntry" type="xswmi:StepsAndOfferedStopPointListEntry" maxOccurs="unbounded"/>
    </sequence>
  </complexType>
  <simpleType name="StopPointCanBeSetBeforeThisStep">
    <restriction base="boolean"/>
  </simpleType>

```

```

<complexType name="StepsAndSelectedStopPointListEntry">
  <sequence>
    <element name="nameOfStep" type="xswmi:NameOfStep"/>
    <element name="sequenceNumberInProgress" type="xswmi:SequenceNumberInProgress"/>
    <element name="stopPointSetIndication" type="xswmi:StopPointSetIndication"/>
  </sequence>
</complexType>
<complexType name="StepsAndSelectedStopPointList">
  <sequence>
    <element name="stepsAndSelectedStopPointListEntry" type="xswmi:StepsAndSelectedStopPointListEntry" maxOccurs="unbounded"/>
  </sequence>
</complexType>
<simpleType name="StopPointSetIndication">
  <restriction base="string">
    <enumeration value="STOP_POINT_IS_SET_BEFORE_THIS_STEP"/>
    <enumeration value="STOP_POINT_IS_NOT_SET"/>
  </restriction>
</simpleType>
<simpleType name="SequenceNumberInProgress">
  <restriction base="unsignedShort"/>
</simpleType>
<simpleType name="NameOfStep">
  <restriction base="string">
    <enumeration value="SW_DOWNLOAD"/>
    <enumeration value="SW_INSTALLATION"/>
    <enumeration value="SW_ACTIVATION"/>
    <enumeration value="PREPARE_BASIC_CONFIGURATION_AND_OAMLINK"/>
    <enumeration value="RETRIEVE_CONFIGURATION_DATA"/>
    <enumeration value="SETUP_PRECONFIGURED_SIGNALLING_LINKS"/>
    <enumeration value="SET_FINAL_STATE_OF_NE"/>
  </restriction>
</simpleType>
<simpleType name="StepProgress">
  <restriction base="string">
    <enumeration value="NOT_YET_STARTED"/>
    <enumeration value="RUNNING"/>
    <enumeration value="COMPLETED"/>
    <enumeration value="AWAITING_RESUME"/>
    <enumeration value="FAILURE"/>
    <enumeration value="TERMINATED"/>
  </restriction>
</simpleType>
<complexType name="StepInfoListEntry">
  <sequence>
    <element name="nameOfStep" type="xswmi:NameOfStep"/>
    <element name="sequenceNumberInProgress" type="xswmi:SequenceNumberInProgress"/>
    <element name="stopPointSetIndication" type="xswmi:StopPointSetIndication"/>
    <element name="stepProgress" type="xswmi:StepProgress"/>
  </sequence>
</complexType>
<complexType name="StepInfoList">
  <sequence>
    <element name="stepInfoListEntry" type="xswmi:StepInfoListEntry" maxOccurs="unbounded"/>
  </sequence>

```

```
</complexType>
<complexType name="swMCapabilityIOC">
  <sequence>
    <element name="id" type="xswmi:Id"/>
    <element name="neInformation" type="xswmi:NEInformation"/>
    <element name="stepsAndOfferedStopPointList" type="xswmi:StepsAndOfferedStopPointList"/>
    <element name="offeredFinalAdministrativeStateInformation" type="xswmi:OfferedFinalAdministrativeStateInformation"/>
  </sequence>
</complexType>
<complexType name="swMProfileIOC">
  <sequence>
    <element name="id" type="xswmi:Id"/>
    <element name="versionNumber" type="xswmi:VersionNumber"/>
    <element name="neInformation" type="xswmi:NEInformation"/>
    <element name="stepsAndSelectedStopPointList" type="xswmi:StepsAndSelectedStopPointList"/>
    <element name="selectedFinalAdministrativeState" type="xswmi:FinalAdministrativeStateValue"/>
  </sequence>
</complexType>
<complexType name="swMProcessIOC">
  <sequence>
    <element name="id" type="xswmi:Id"/>
    <element name="nEIdentification" type="xswmi:NEInformation"/>
    <element name="profileId" type="xswmi:ProfileId"/>
    <element name="stepInfoList" type="xswmi:StepInfoList"/>
  </sequence>
</complexType>
</schema>
```

---

## Annex A (informative): XML schema electronic files

The electronic files corresponding to the XML schemas defined in the present document are available in native form in the following archive:

[http://www.3gpp.org/ftp/specs/archive/32\\_series/32535/schema/32535-800-XMLSchema.zip](http://www.3gpp.org/ftp/specs/archive/32_series/32535/schema/32535-800-XMLSchema.zip)

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## Annex B (informative): Change history

Change history								
Date	TSG #	TSG Doc.	CR	R	Subject/Comment	Cat	Old	New
Dec 2009	SA#46	SP-090736	--	--	Presentation to SA for Information and Approval	--	--	1.0.0
Dec 2009	--	--	--	--	Publication	--	1.0.0	8.0.0
Dec 2009	-	-	-	-	Update to Rel-9 version	--	8.0.0	9.0.0

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## History

<b>Document history</b>		
V9.0.0	February 2010	Publication