

Configuration Guide for Emergency Services

Ericsson Service-Aware Policy Controller

USER GUIDE

Copyright

© Ericsson España, S.A. 2017. All rights reserved. No part of this document may be reproduced in any form without the written permission of the copyright owner.

Disclaimer

The contents of this document are subject to revision without notice due to continued progress in methodology, design and manufacturing. Ericsson shall have no liability for any error or damage of any kind resulting from the use of this document.

Trademark List

All trademarks mentioned herein are the property of their respective owners. These are shown in the document Trademark Information.



Contents

1	Configuration and Provisioning Overview	1
1.1	Other Conventions	1
2	Configuration Prerequisites	5
3	Configure Emergency APNs	7
4	Configure Unauthenticated Emergency Services	9
5	Provision Emergency Subscriber	11
6	Emergency Subscriber Profile in External Repository	13
7	Configuration Examples for Use Cases	15
7.1	Emergency Services	15
7.2	IMS Emergency Services	17
8	Appendix A. Emergency Services Policy Tags	19
	Reference List	21





1 Configuration and Provisioning Overview

Next figure, shows the main parts related to configuration and provisioning in the SAPC.

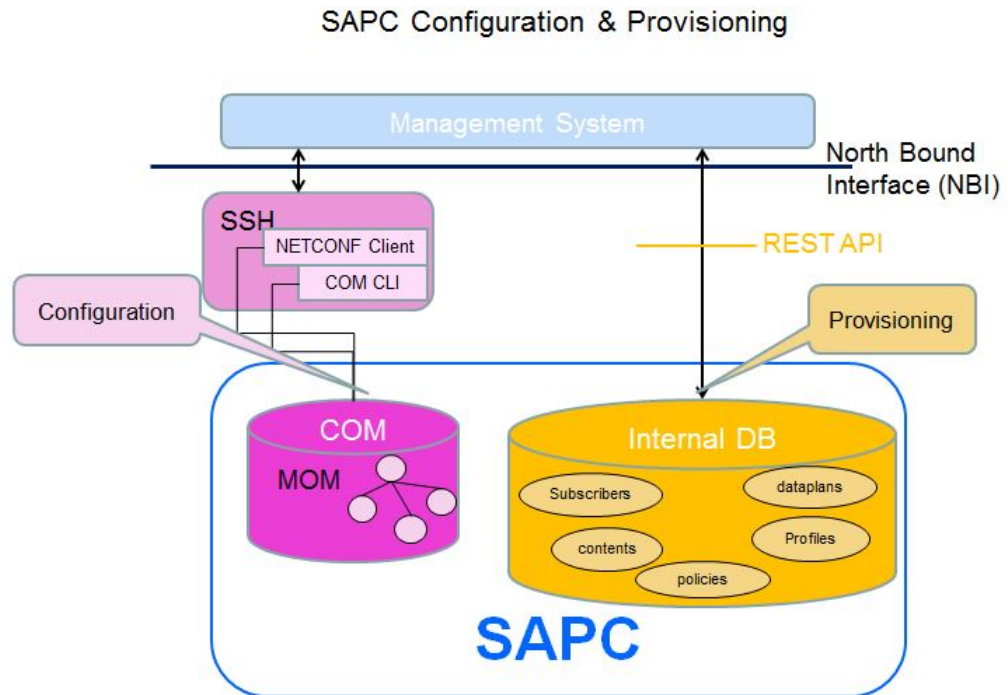


Figure 1 Configuration and Provisioning Overview

The purpose of this document is to provide guidelines to configure the SAPC node for emergency services by providing configuration examples.

The configuration for emergency services is an extension of Configuration Guide for Access and Charging Control (Gx) and Configuration Guide for Dynamic Policy Control (Rx).

The complete parameter list and details of all configured options of the SAPC are included in separate documents, refer to Managed Object Model (MOM), Provisioning REST API, and Database Access.

Examples on this document cover the case of data configured in the SAPC internal repository. In case an external repository is used, refer to Database Access.

1.1 Other Conventions

This document refers to some configuration and provisioning data.



To clarify which detailed data is managed by COM or by the REST API, this document uses the following conventions:

- Configuration: whenever referring to Managed Object Class (MOC).

The detailed description for the object and attributes can be found in [Managed Object Model \(MOM\)](#).

Example: set `enableReauthsOnSubsChange` attribute in class `AppConfig`.

The tools or interfaces to manage these data in the SAPC are:

- a NETCONF interface, refer to [Ericsson NETCONF Interface](#).

The configuration examples show the NETCONF file contents, using the following syntax:

```
<edit-config>
...
<config>
<ManagedElement xmlns="urn:com:ericsson:ecim:ComTop">
<managedElementId>1</managedElementId>
...
</ManagedElement>
</config>
</edit-config>
```

- b Or COM CLI, refer to [Ericsson Command-Line Interface](#).

- Provisioning: mainly subscribers, subscriber groups (dataplan), services (contents), profiles, and policy-related data. The SAPC provides a REST API for them, see [Provisioning REST API](#).

This document uses the following terminology for them: `<resource-name>` URI in the provisioning REST API.

Example: To provision subscriber groups, use the `dataplan` URI in the provisioning REST API.

And provisioning examples show HTTP operations on REST resources with the following syntax:

HTTP-Operation /resource-URI
 {json content} where /resource-URI is the relative URI from the SAPC provisioning base URI detailed in [Provisioning REST API](#).

Example:

```
PUT /dataplan/Gold
{ "dataplanName" : "Gold",
  "subscribedContents" : [{"contentName" : "HTTP_Streaming",
                           "redirect" : false}]}
```



```
}
```

Note: To ease provisioning operations, the SAPC provides an HTTPS CLI client named `resty`, refer to [Provisioning Tools](#).





2 Configuration Prerequisites

Before configuring the SAPC in an operational network, assure that:

- CBA Components are installed.
- The SAPC product software is installed.
- To have a detailed understanding of the function.





3 Configure Emergency APNs

To support emergency services in the SAPC, include the list of emergency APNs in the emergencyIds attribute of Apns MOC.

```
<edit-config>
  <target>
    <running/>
  </target>
  <config>
    <ManagedElement xmlns="urn:com:ericsson:ecim:ComTop">
      <managedElementId>1</managedElementId>
      <PolicyControlFunction xmlns="urn:com:ericsson:ecim:sapcmom">
        <policyControlFunctionId>1</policyControlFunctionId>
        <Network xmlns="urn:com:ericsson:ecim:networkmom">
          <networkId>1</networkId>
          <Apns>
            <apnsId>1</apnsId>
            <emergencyIds>sos</emergencyIds>
            <emergencyIds>sos_2</emergencyIds>
          </Apns>
        </Network>
      </PolicyControlFunction>
    </ManagedElement>
  </config>
</edit-config>
```

Example 1 Configure Emergency APNs

In Example 1, sos and sos2 are configured as emergency APNs in the SAPC.





4 Configure Unauthenticated Emergency Services

By default, the SAPC supports unauthenticated (not received Subscription-Id AVP) emergency services, using the IMEI (User-Equipment-Info AVP). To disable emergency services when Subscription-Id AVP is not received, set to false the enableEmergenciesWithImei attribute in the PccConfig MOC.

```
<edit-config>
  <target>
    <running/>
  </target>
  <config>
    <ManagedElement xmlns="urn:com:ericsson:ecim:ComTop">
      <managedElementId>1</managedElementId>
      <PolicyControlFunction xmlns="urn:com:ericsson:ecim:sapcmom">
        <policyControlFunctionId>1</policyControlFunctionId>
        <AppConfig xmlns="urn:com:ericsson:ecim:appconfigmom">
          <appConfigId>1</appConfigId>
          <PccConfig xmlns="urn:com:ericsson:ecim:mobileconfigmom"
            xmlns:nc="urn:ietf:params:xml:ns:netconf:base:1.0" n
            <pccConfigId>1</pccConfigId>
            <enableEmergenciesWithImei>false</enableEmergenciesW
          </PccConfig>
        </AppConfig>
      </PolicyControlFunction>
    </ManagedElement>
  </config>
</edit-config>
```

Example 2 Configure parameter enableEmergenciesWithImei.

Example 2 shows how the enableEmergenciesWithImei flag is disabled.





5 Provision Emergency Subscriber

The SAPC can handle emergency sessions without the emergency subscriber provisioned. To apply specific data (for example QoS or authorized services) for emergency sessions, provision the "emergency" subscriber, using the subscribers URI in the provisioning REST API. The SAPC uses the emergency subscriber for all emergency sessions, regardless of the subscriber traffic identity received. Also, the global subscriber group attributes can affect an emergency session. The unknown subscriber and autoprovisioning do not apply to emergency services.

Note: Some attributes do not apply to the emergency sessions, so trying to provision the emergency subscriber with those attributes returns a failure. See [Provisioning REST API](#) for further details.

```
PUT /subscribers/emergency
{
  "subscribedContents" :
  [
    {
      "contentName" : "EmergencyImsAccess",
      "redirect" : false
    },
    {
      "contentName" : "EmergencyLocationService",
      "redirect" : false
    }
  ],
  "subscriberId" : "emergency"
}
```

Example 3 Provision Emergency Subscriber.

In Example 3, the emergency subscriber is provisioned with EmergencyImsAccess and EmergencyLocationService service.

To apply specific data (for example QoS or authorized services) for emergency sessions depending on conditions, use Subscriber or Global policy locators. Do not use Subscriber Group locator policies, because the emergency subscriber cannot be assigned to any subscriber group.

To create an emergency subscriber locator, use the following URI in the provisioning REST API:

```
/subscribers/emergency/locators/resources/<resource>/contexts/<context>
```



Note: Subscriber and Global policy locators apply to emergency calls, even if the emergency subscriber is not provisioned.

The global locator can be provisioned as specified in [Configuration Guide for Subscription and Policies](#).



6 Emergency Subscriber Profile in External Repository

The SAPC supports to store the emergency subscriber profile in an external repository. To do so, modify EDSrcId=SubscriberEmergency to specify in their `dataSource` fields the details to access the external repository. For details, refer to [Integration in User Data Consolidation](#).

Note: Some fieldDefs do not apply to the emergency subscriber, thus these fields are preconfigured to "".





7 Configuration Examples for Use Cases

7.1 Emergency Services

This section shows configuration examples for the emergency services applicable to Gx interaction. This is a prerequisite to configure IMS emergency services described in Section 7.2 on page 17.

Configure the SAPC as follows:

- Configure the list of emergency APNs, as explained in Section 3 on page 7.
- If needed, set the attribute `enableEmergenciesWithImei` to false, as explained in Section 4 on page 9.
- Provision the emergency subscriber profile (as explained in Section 5 on page 11) and the list of available services to be provided through an emergency APN.

In Example 4 "sos", "sos2" are configured as emergency APNs.

```
<edit-config>
  <target>
    <running/>
  </target>
  <config>
    <ManagedElement xmlns="urn:com:ericsson:ecim:ComTop">
      <managedElementId>1</managedElementId>
      <PolicyControlFunction xmlns="urn:com:ericsson:ecim:sapcmom">
        <policyControlFunctionId>1</policyControlFunctionId>
        <Network xmlns="urn:com:ericsson:ecim:networkmom">
          <networkId>1</networkId>
          <Apns>
            <apnsId>1</apnsId>
            <emergencyIds>sos</emergencyIds>
            <emergencyIds>sos2</emergencyIds>
          </Apns>
        </Network>
      </PolicyControlFunction>
    </ManagedElement>
  </config>
</edit-config>
```

Example 4 Configuration for emergency APNs.

In Example 5 the emergency subscriber profile includes a static service for IMS access and an emergency location service located at 192.168.2.1. Both services run on the default bearer. The objective is to only allow traffic from the UE to the IMS server (P-CSCF) or the location server in the emergency IP-CAN bearer.



```
PUT /subscribers/emergency
{
  "subscribedContents" :
  [
    {
      "contentName" : "EmergencyImsAccess",
      "redirect" : false
    },
    {
      "contentName" : "EmergencyLocationService",
      "redirect" : false
    }
  ],
  "subscriberId" : "emergency"
}

PUT /contents/EmergencyImsAccess
{
  "contentName" : "EmergencyImsAccess",
  "pccRuleName" : "1000",
  "pccRuleType" : 0
}

PUT /contents/EmergencyLocationService
{
  "contentName" : "EmergencyLocationService",
  "flows" :
  [
    {
      "destIpAddr" : "any",
      "destPort" : "",
      "direction" : "dl",
      "flowName" : "1",
      "protocol" : "ip",
      "sourceIpAddr" : "192.168.2.1",
      "sourcePort" : ""
    },
    {
      "destIpAddr" : "192.168.2.1",
      "destPort" : "",
      "direction" : "ul",
      "flowName" : "2",
      "protocol" : "ip",
      "sourceIpAddr" : "any",
      "sourcePort" : ""
    }
  ],
  "pccRuleName" : "3001",
  "pccRuleType" : 2
}
```



```
}
```

Example 5 Provision of Emergency Subscriber and Gx Services

The next example (Example 6) illustrates the configuration to apply a particular default bearer QoS to emergency IP-CAN bearer services. In this example, the QoS of the default bearer (with QCI=5, ARP=1) is statically assigned to the emergency subscriber.

```
PUT /subscribers/emergency
{
  "staticQualification" :
  {
    "maxBearerQosProfileId" : "DefaultEmergencyBearerQos",
    "minBearerQosProfileId" : "DefaultEmergencyBearerQos"
  },
  "subscriberId" : "emergency"
}

PUT /profiles/ip-can-session-qos/DefaultEmergencyBearerQos
{
  "arpPriorityLevel": 1,
  "mbrDownlink" : 104,
  "mbrUplink" : 104,
  "profileId" : "DefaultEmergencyBearerQos",
  "qci": 5
}
```

Example 6 Provision of Emergency Subscriber and Gx Services with QoS profile.

7.2 IMS Emergency Services

This section shows a configuration example for IMS emergency services applicable to Rx interaction that complements the configuration example for the emergency IP-CAN bearer described in Section 7.1 on page 15.

Example 7 shows:

- A dynamic service classification policy, that uses AF-Application-Identifier, Media-Type and Service-URN information received over Rx interface to classify VoiceEmergencyService.
- A static QoS profile is associated to voice emergency service. Following the standards recommendations, a dedicated bearer is set up for audio QCI=1 and the appropriate value for the ARP according to operator local policies and regulations.

```
PUT /contents/DefaultDynamicEmergencyService
```



```
{
  "contentName" : "DefaultDynamicEmergencyService",
  "staticQualification" :
  {
    "contentQosProfileId" : "VoiceEmergencyServiceProfile"
  }
}

PUT /profiles/content-qos/VoiceEmergencyServiceProfile
{
  "arpPriorityLevel" : 1,
  "mbrDownlink" : 31,
  "mbrUplink" : 31,
  "profileId" : "VoiceEmergencyServiceProfile",
  "gbrDownlink" : 31,
  "gbrUplink" : 31,
  "qci" : 1
}

PUT /rules/rclassifyVoiceEmergencyService
{
  "condition" : "(AfData.appId == \"urn%3Aurn-xxx%3A3gpp-service.ims.icsi\"",
  "outputAttributes" :
  [
    {
      "attrName" : "service",
      "attrValue" : "\"DefaultDynamicEmergencyService\"",
      "result" : "permit"
    }
  ],
  "ruleName" : "rclassifyVoiceEmergencyService"
}

PUT /policies/pClassifyVoiceEmergencyService
{
  "policyName" : "pClassifyVoiceEmergencyService",
  "ruleCombiningAlgorithm" : "multiple-match",
  "rules" : [ "rclassifyVoiceEmergencyService" ]
}

PUT /locators/resources/application/contexts/service-classification
{
  "policies" :
  [
    "pClassifyVoiceEmergencyService"
  ]
}
```

Example 7 Provision of IMS Emergency Services



8 Appendix A. Emergency Services Policy Tags

Table 1 shows the emergency services related policy tag that can be used in the condition formula of rules.

Table 1 Emergency services policy tag.

Tag	Return Type	Possible Values	Comments
AfData.serviceUrn	String	any	The value of the service URN provided by the AF for the Rx session. If not received or the AF session is not used for emergency traffic, the value returned is "" (empty string).





Reference List

Ericsson Documents

- [1] Configuration Guide for Access and Charging Control (Gx)
- [2] Managed Object Model (MOM)
- [3] Provisioning REST API
- [4] Database Access