

# Geographical Redundancy

Ericsson Service-Aware Policy Controller

USER GUIDE

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**Abstract**

The purpose of this document is to provide a guideline to manage Geographical Redundancy in the SAPC



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# 1 Introduction

## 1.1 Document Purpose and Scope

The purpose of this document is to provide a guideline for configuring the SAPC node for **geographical redundancy**. This can be managed using NETCONF or the ECLI to manipulate the MIB.

## 1.2 Revision Information

**Rev. A** This is the first release of this document.

## 1.3 Typographic Conventions

This document uses the following typographic conventions:

Table 1 Typographic Conventions

Convention	Description	Example
User Input	A command you must enter in a Command-Line Interface (CLI) exactly as written.	<b>showConfiguration</b>
Reserved Elements	Reserved words for geographical redundancy	Active
Output Information	Text displayed by the system	currentState





## 2 Geographical Redundancy Procedures and States

### 2.1 Geographical Redundancy Procedures and States

The following figure shows the different state transitions because of geographical redundancy OAM procedures:

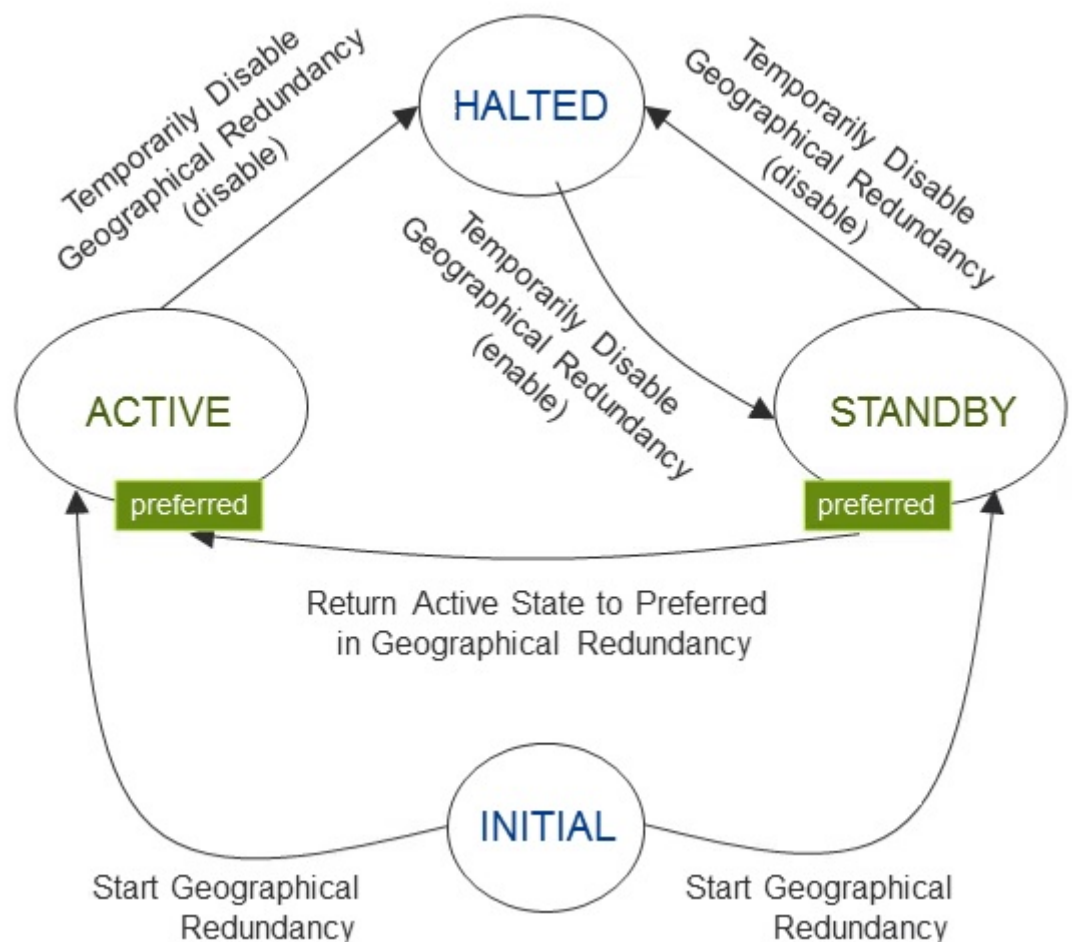


Figure 1 State transitions because of geographical redundancy OAM procedures

The following figure shows the different state transitions taking into account both SAPC peers:

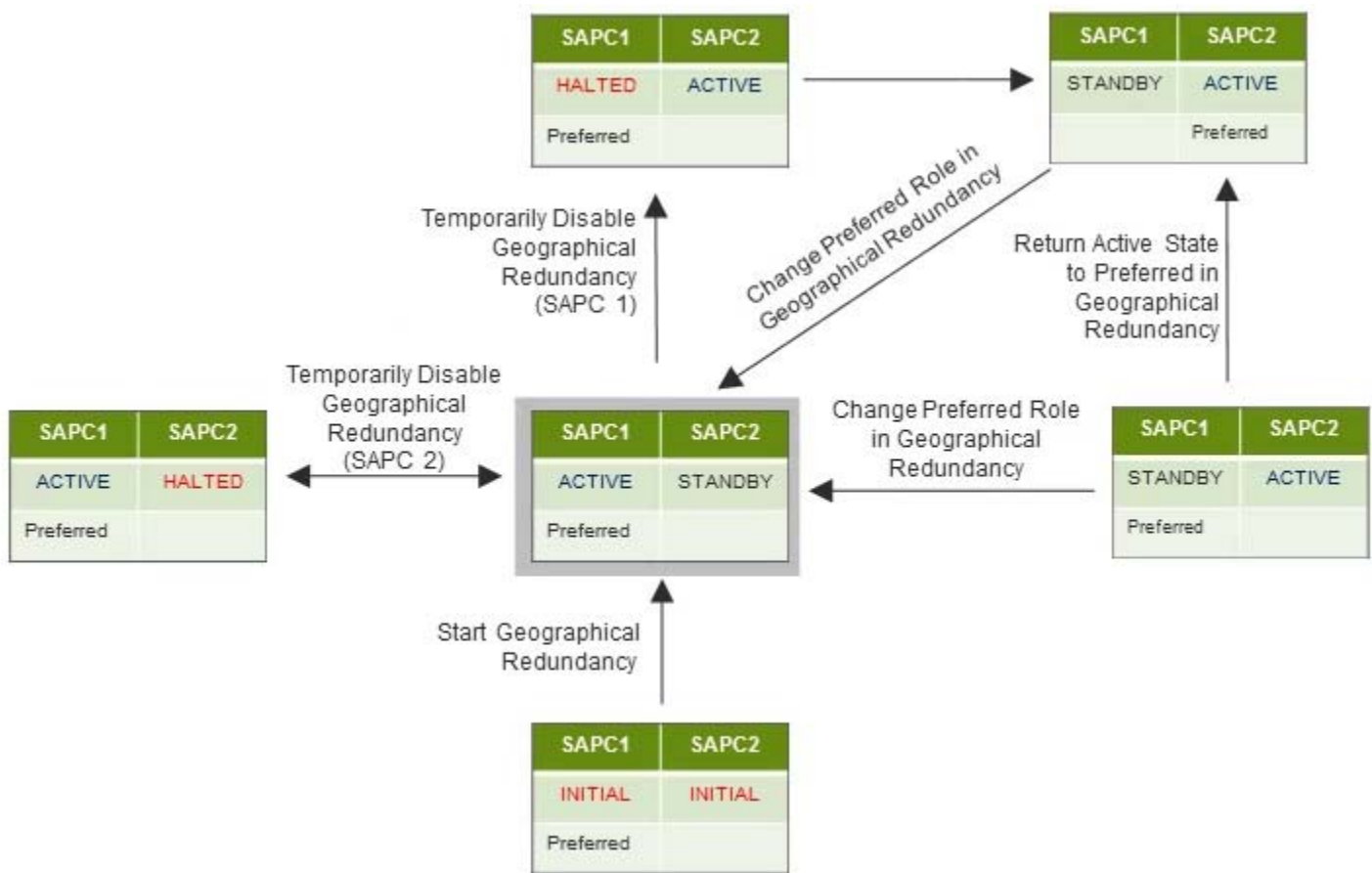


Figure 2 State transitions in both SAPC peers because of geographical redundancy OAM procedures

## 2.2 Recommended Operating Conditions

Ericsson recommends setting Preferred node as Active state. If there is a failure in the Preferred Active node, the Standby node transitions to Active and takes over. If there is a failure in the preferred active node, the standby SAPC transitions to active and takes over. Then the preferred node does not process traffic. To return traffic processing to the Preferred node, follow the procedure in Change Preferred Role in Geographical Redundancy.





## 3 Geographical Redundancy Procedures

### 3.1 Preconditions

The following conditions must be fulfilled before the data presented in this document is configured in an operational network:

- CBA components are installed.
- The SAPC product software has been installed.
- Understand Geographical Redundancy functionality.

### 3.2 Start Geographical Redundancy

To start geographical redundancy in the two SAPC peers, follow [Start Geographical Redundancy](#).

### 3.3 Temporarily Disable Geographical Redundancy

To temporarily disable geographical redundancy, follow [Temporarily Disable Geographical Redundancy](#).

### 3.4 Monitor Geographical Redundancy State

This procedure retrieves the geographical redundancy state of the node. During normal operation, it is expected that the node is either in Active or Standby state.

To monitor geographical redundancy state, do the following:

1. Connect to the SAPC and open an Ericsson Command-Line Interface (CLI) session.
2. Navigate to `class GeoRedManager` object:  

```
>dn ManagedElementId=1,PolicyControlFunction=1,GeoRedManager=1
```
3. Execute action `show`:  

```
(ManagedElement=1,PolicyControlFunction=1,GeoRedManager=1)>show
```
4. Verify the values of `currentState` and `previousState` attributes.

### 3.5 Check Geographical Redundancy Configuration

To check geographical redundancy configuration, do the following:



1. Connect to the SAPC and open an Ericsson Command-Line Interface (CLI) session.

2. Navigate to class `GeoRedManager` object:

```
>dn ManagedElementId=1,PolicyControlFunction=1,GeoRedManager=1
```

3. Execute action `showConfiguration`:

```
(ManagedElement=1,PolicyControlFunction=1,GeoRedManager=1)>show  
Configuration
```

4. Verify the values of `Local IP`, `Peer IP`, and `Role` attributes.

## 3.6 Change Preferred Role in Geographical Redundancy

To change Preferred role in geographical redundancy, follow [Change Preferred Role in Geographical Redundancy](#).

## 3.7 Return Active State to Preferred Node

To return Active state to Preferred node, follow [Return Active State to Preferred in Geographical Redundancy](#).



## 4 Fault Management

The following is the list of Alarms related to Geographical Redundancy:

- Policy Control, Geographical Redundancy Unable To Reach Peer

The DBS ones are the following:

- DBS, NR, Configuration Invalid
- DBS, NR, Connection Lost
- DBS, NR, Initial Synchronization Needed
- DBS, NR, Out Of Sync
- DBS, NR, Redundancy Disabled
- DBS, NR, Synchronization Needed





## 5 Configuration

### 5.1 Heartbeat Configuration

Two values related to the heartbeat used in geographical redundancy can be configured:

- heartbeat\_timer: Time interval since Active node sends one heartbeat and the next one.
- heartbeat\_retries: The number of retries to send the heartbeat before raising the alarm *Policy Control, Geographical Redundancy Unable To Reach Peer*.

These values are defined in `/cluster/storage/system/config/sapc/geore d-control.cfg`.

### 5.2 DBS Replication Timers

Two values related to the timers used for DBS replication can be configured:

- connectTimeout: The time DBS waits between connection attempts.
- retryLimit: The number of times DBS tries to connect before declaring the peer unreachable.

These values are configured and verified as in the following examples:

```
immcfg -a connectTimeout=5 -a retryLimit=3 dbsNetsharedConnectionI  
d=1,dbsNetsharedPeerClusterId=1,dbsNetsharedConfigId=1
```

```
immlist dbsNetsharedConnectionId=1,dbsNetsharedPeerClusterId=1,dbs  
NetsharedConfigId=1
```





# Glossary

**CBA**

Component Based Architecture

**DN**

Distinguished Name

**ECLI**

Ericsson Command-Line Interface

**SAPC**

Ericsson Service-Aware Policy Controller

**VIP**

Virtual IP