

# Configuring the Public Warning System

## OPERATION DIRECTIONS

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# 1 Introduction

This document describes the configuration of the license-controlled feature Public Warning System (PWS) for LTE radio network access.

The PWS feature enables warning messages regarding disasters and other emergencies, such as earthquakes or tsunamis, to be sent to the public. Warning messages are broadcast to a notification area based on the geographical information as specified by the warning message provider. The PWS feature is also applicable for Earthquake and Tsunami Warning System (ETWS), and Commercial Mobile Alert System (CMAS) services.

To display the configuration classes and parameters related to the PWS feature, use the `get_config_area -can InterfaceSBc` CLI command.

## 1.1 Scope

This document covers the following:

- Configuration prerequisites
- PWS configuration

For more information regarding the SBc interface, see [SBc Interface Description](#).

The configuration is applied using CLI commands. The O&M environment, including the CLI, is further described in [Operation and Maintenance Description](#).

## 1.2 Target Groups

This document is intended for personnel configuring the PWS.

# 2 Prerequisites

This section outlines the prerequisites for the configuration.

## 2.1 Planning

Before executing the instructions in this document, do the following:



- Refer to the document *Public Warning System* to understand the PWS feature.
- Ensure that an external system capable of handling the PWS log files is available, for example, Ericsson Operational Support System for Radio and Core (OSS-RC).
- Ensure that the license-key file containing the license for the PWS is loaded. For more information on installing a license for the PWS, see *Installing Node-Based Licenses*. If network-based licenses are used, see *Activation of NeLS Client Licenses*.

## 2.2 User

The person following these instructions must be trained in management of the SGSN-MME.

# 3 Configuration of the Public Warning System

This section describes the configuration of the PWS.

## 3.1 Configuring Network Identity and Time Zone

Ericsson recommends performing the Network Identity and Time Zone (NITZ) procedure to synchronize the internal Emergency Warning System clock of the UE.

### Instructions

To configure the NITZ, do the following:

1. Perform the NITZ procedure by setting the `S1SendEmmInfo` parameter to `full` using the `modify_s1_mme` CLI command.

## 3.2 Configuring the SBc Interface

The SBc interface connects the SGSN-MME to the Cell Broadcast Center (CBC), and enables transfer of warning messages.

### Instructions

To configure the SBc interface, do the following:



1. (Optional) Create new SBc-VPNs using the `create_ip_network` and `create_ip_network_subnet` CLI commands, or reuse the VPNs of other IP interfaces.
2. Create new IP services SBc-1 and SBc-2 using the `create_ip_service` CLI command.
3. Assign IPv4 or IPv6 addresses to new SBc services using the `create_ip_service_address` or `create_ip_service_ipv6address` CLI command.
4. Create a new SCTP endpoint for the SBc IP services using the `create_sctp_end_point` CLI command. The port number is set to 29168.
5. Create a logical instance of SBc-AP using the `create_sbc` CLI command.

To display information on all CBCs that are known to the MME, use the `show_mme_cbc` CLI command. If a configured CBC is not listed, see [Troubleshooting](#) for information about SBc interface problems.

6. If the delivery of the SBc indication report is enabled on the CBC, the buffer size and the threshold of buffer size for user data transmission are required to be increased for an SCTP profile used for SBc-AP. It is recommended to set the `UserdataTransmitBufferSize` parameter to a value greater than or equal to 512KBytes (524288 bytes) and the `ThresholdOfUserdataTransmitBufferSize` parameter to a value less than or equal to `UserdataTransmitBufferSize - 256KBytes` (262144 bytes).

The MME can be configured to include the `Criticality Diagnostics IE` in the following messages to the CBC:

- Write-Replace Warning Response
- Stop Warning Response
- Error Indication

### Instruction

Enable the node function `sbc_sending_criticality_diagnostic` using the `modify_node_function` CLI command.

### Example

```
gsh modify_node_function -name sbc_sending_criticality_diagnostic -state on
```

For more information on this configuration, see [Configuring IP-Based Interfaces](#), [Configuring SCTP-Based Interfaces](#), [Feature Management \(CLI\)](#) and [Parameter Description](#).



### 3.3 Configuring S1-AP Timers (Optional)

The S1-AP timers are defined by the `S1TKill` and `S1WriteReplaceWarning` parameters. Configuration of the S1-AP timers is optional.

#### Instructions

To configure the S1-AP timers, do the following:

1. Configure the S1-AP timers defined by the `S1TKill` and `S1WriteReplaceWarning` parameters, using the `modify_s1_mme` CLI command.

### 3.4 Configuring the SBcAllowUnknownTAIs Parameter (Optional)

The `SBcAllowUnknownTAIs` parameter specifies whether the MME allows any unknown Tracking Area Identities (TAIs) in the received SBc messages. Configuration of the `SBcAllowUnknownTAIs` parameter files is optional.

#### Instructions

To configure the `SBcAllowUnknownTAIs` parameter, do the following:

1. Configure the `SBcAllowUnknownTAIs` parameter to `True` using the `modify_sbc` CLI command. This causes the MME to ignore the unknown TAIs received from the CBC. Instead, the MME tries to deliver the SBc message to the eNodeBs deducted from the known TAIs.

### 3.5 Configuring the SctpAssociationReestablishment Parameter

The `SctpAssociationReestablishment` parameter enables the MME to reestablish SCTP associations, when the MME detects lost SCTP associations on the S1-MME interface, and on the SBc interface. The configuration of this parameter for each interface is done independently. The SCTP association can be lost, for example, because of SCTP failure or IP network disturbance, and the MME reestablishes the SCTP association.

#### Instructions

To configure the `SctpAssociationReestablishment` parameter, do the following:

1. Configure the `SctpAssociationReestablishment` parameter to `True` using the `modify_sbc` CLI command. This causes the MME to reestablish SCTP associations, when the MME detects lost SCTP associations on the S1-MME interface, and on the SBc interface.



## 3.6 Enabling the Public Warning System Feature

### Instructions

To enable the PWS feature, do the following:

1. Enable the PWS feature, by setting the feature state to `ACTIVATED` for the `public_warning_system` parameter, using the `modify_feature_state` CLI command.

## 3.7 Configuring SBc-AP Signaling Prioritization (Optional)

The MME can be configured to prioritize SBc Application Protocol (SBc-AP) signaling regardless of the CPU load on the SCTP DP.

### 3.7.1 Configuring the `RejectSBcAtSctpHighLoad` Parameter

The `RejectSBcAtSctpHighLoad` parameter specifies whether to reject the SBc-AP signaling when the CPU load on the DP is high.

For more information about the `RejectSBcAtSctpHighLoad` parameter, see [Parameter Description](#).

### Instructions

To configure the `RejectSBcAtSctpHighLoad` parameter, do the following:

1. Configure the `RejectSBcAtSctpHighLoad` parameter using the `modify_sbc` CLI command.

### 3.7.2 Configuring the `DiscardPagingDuringPWS` Parameter

The `DiscardPagingDuringPWS` parameter specifies whether to discard paging requests which are not Emergency or MPS-classified during sending of the PWS-related signaling.

For more information about MPS-classified paging requests, see [Configuring Multimedia Priority Service](#).

### Instructions

To configure the `DiscardPagingDuringPWS` parameter, do the following:

1. Configure the `DiscardPagingDuringPWS` parameter using the `modify_s1_mme` CLI command.

When the `DiscardPagingDuringPWS` parameter is set to `true`, the MME discards the paging requests, which are not Emergency or MPS-classified, during transmission of the PWS-related signaling.



After transmission of the PWS-related signaling is completed, the MME resends the paging requests. As a result, the number of paging messages increases, which may also cause increase of the CPU load.

## 3.8 Configuring PWS Log Files

The output parameters generated when using the PWS feature are shown in the PWS Log files. Two log files are generated when the PWS feature is running: `pws_log` and `pws_sbc_log`. The `pws_log` file includes logs generated over the S1-MME interface, and the `pws_sbc_log` file includes logs generated over the SBC interface. Configuration of the PWS log files is optional.

### Instructions

To configure the PWS log files, do the following:

1. (Optional) Configure the file size and the number of PWS log files by using the `set_log_config` CLI command.

**Note:** If the delivery of the SBC indication report is enabled on the CBC, and multiple Write-Replace Warning Request or Stop Warning Request messages involving all eNodeBs connected the MME are received from the CBC over the SBC interface within a short period of time, it is recommended to enlarge the storage for the `pws_log` and `pws_sbc_log` files by setting the `MaxNumFilesInLog` parameter in the `set_log_config` CLI to a value greater than the default value.

For more information, see [Logging \(CLI\)](#) and [Public Warning System Log](#). For more information regarding logs managed with log support, see [Operation and Maintenance Description](#).

## 3.9 Consistency Checking, Activating, and Checkpointing

This section describes procedures for consistency checking, activating, and checkpointing the configuration.

### 3.9.1 Checking Performance Measurement Jobs

Optionally, update the PM jobs, see [Performance Measurement Job \(CLI\)](#). For more information about relevant counters, see [Public Warning System](#).

### 3.9.2 Checking and Activating the Configuration

Check the consistency and activate the pending configuration by performing the following steps:



1. Run a consistency check before activating the pending configurations by using the following CLI command:

```
gsh check_config
```

2. Activate the pending configuration by using the following CLI command:

```
gsh activate_config_pending
```

### **3.9.3 Checkpointing the SC**

To persistently store the Software Configuration (SC) in the SGSN-MME, a checkpoint must be performed.

#### **Instructions**

1. Checkpoint the SC, by using the `checkpoint` CLI command.





# Reference List

## Network License Server (NeLS) CPI Library References

- [1] Activation of NeLS Client Licenses  
USER GUIDE, 6/1553-AVA 901 45/1